VOLUME 17 PART 3

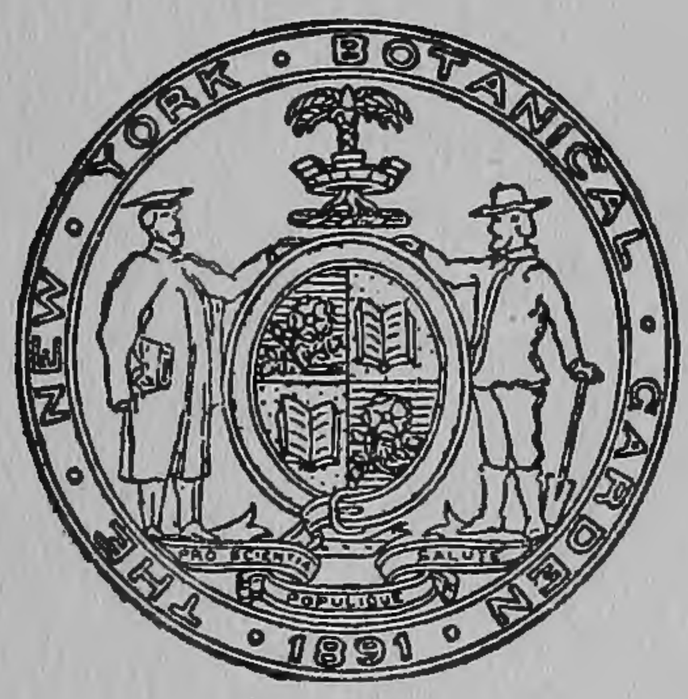
NORTH AMERICAN FLORA

(POALES)

POACEAE (pars)

GEORGE VALENTINE NASH

ALBERT SPEAR HITCHCOCK



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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Bryon D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
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102. **Paspalum Humboldtianum** Flügge, Gram. Monog. 67. 1810.

Paspalum ciliatum H.B.K. Nov. Gen. & Sp. 1: 87. 1815.

A perennial plant with long rootstocks. Stems up to 1 m. tall, often branching below; leaf-sheaths overlapping, ciliate, otherwise glabrous; blades up to 1.5 dm. long, 7–14 mm. wide, lanceolate to linear-lanceolate, rounded or subcordate at the base, long-acuminate, flat, ciliate, otherwise glabrous, or appressed-hispid; racemes 2–9, up to 1 dm. long, erect or ascending, the rachis 0.7–1.2 mm. wide; spikelets 3 mm. long, 1–1.2 mm. wide, the first scale wanting, the second and third scales 3-nerved, acute, the second scale appressed-pubescent on the surface, ciliate with very long white hairs, the third scale glabrous or sparingly appressed-pubescent, the fruiting scale yellowish, elliptic, acutish, sparsely pubescent at the apex.

TYPE LOCALITY: South America.
DISTRIBUTION: Mexico to Costa Rica; also in South America.
ILLUSTRATIONS: H.B.K. Nov. Gen. & Sp. *pl. 23, 24.*

103. **Paspalum pectinatum** Nees, Agrost. Bras. 34. 1829.

Stems up to 8 dm. tall, tufted, glabrous, simple; leaf-sheaths strongly striate, the basal glabrous, firm and thick, the upper glabrous or pubescent; blades up to 2.5 dm. long, 3–5 mm. wide, linear, long-acuminate, hirsute; racemes in pairs, conjugate, with sometimes another a short distance below, 3–6 cm. long, erect, the rachis 1.5–2 mm. wide; spikelets singly disposed, 5–6 mm. long, the first scale wanting, the second scale 3-nerved, or imperfectly 5-nerved, membranous, thin, ciliolate, with a broad wing, the third scale 3-nerved, tuberculate-hispid on the back, strongly tuberculate-ciliate, the fruiting scale thin, elliptic, obtuse, pubescent at the apex.

TYPE LOCALITY: Southern Brazil.
DISTRIBUTION: Costa Rica and Panama; also in Colombia and Brazil.
ILLUSTRATION: Trin. Ic. *pl. 117.*

104. **Paspalum saccharoides** Nees; Trin. Ic. *pl. 107.* 1827.

Saccharum polystachyon Sw. Prodr. 21. 1788. Not *Paspalum polystachyum* R. Br. 1810.
Panicum saccharoides Kunth, Rév. Gram. 237. 1830.
Syllepis polystachya Fourn. Mex. Pl. Gram. 52. 1881.
Tricholaena saccharoides Griseb. Fl. Brit. W. Ind. 557. 1864.

Stems up to 1 m. tall or more; leaf-sheaths ciliate, otherwise glabrous; blades up to 3 dm. long, 1–1.5 cm. wide, flat, pubescent on the upper surface, glabrous beneath; racemes numerous, slender, lax, fascicled, up to 2.5 dm. long, the rachis about 0.5 mm. wide; spikelets 2.5–3 mm. long, 0.5–0.7 mm. wide, lanceolate, auricled at the base by the extension of the lateral nerves, the first scale wanting, the second and third scales very delicate and thin, 2-nerved by the suppression of the midnerve, the internerve hyaline, the second scale ciliate with hairs 2–3 times as long as the spikelet, the third scale lanceolate, glabrous, shorter than the first, the fruiting scale yellowish-green, thin, smooth, about three fifths as long as the spikelet.

TYPE LOCALITY: St. Kitts.
DISTRIBUTION: St. Kitts to Grenada; Costa Rica; Panama; also in northern South America.
ILLUSTRATIONS: Trin. Ic. *pl. 107;* Kunth, Rév. Gram. *pl. 30.*

DOUBTFUL SPECIES

Paspalum abbreviatum Trin.; Fourn. Mex. Pl. Gram. 10. 1881. Type locality: Mexico.

Paspalum affine Steud. Syn. Gram. 24. 1854. Type locality: Oaxaca.

Paspalum densiflorum Doell, in Mart. Fl. Bras. 2^2: 52. 1877. Said by Doell to occur in the West Indies.

Paspalum effusum Nees, Jour. Bot. & Kew Misc. **2**: 104. 1850. Reported from Nicaragua by Hemsley.

Paspalum floribundum Desv. Opusc. 58. 1831. Type locality: Antilles?

Paspalum geniculatum Raf. Fl. Ludov. 15. 1817. Type locality: Louisiana.

Paspalum Karwinskyi Fourn. Mex. Pl. Gram. 8. 1881. Type locality: Mexico.

Paspalum koleopodum Steud. Syn. Gram. 18. 1854. Type locality: Guadeloupe.

Paspalum lineare Fourn. Mex. Pl. Gram. 12. 1881. Type locality: Mexico.

Paspalum molle Poir. in Lam. Encyc. **5**: 34. 1804. Type locality: St. Thomas.

Paspalum mononeurum Steud. Syn. Gram. 24. 1854. Type locality: Oaxaca.
Paspalum pubescens Lag. Gen. & Sp. Nov. 2. 1816. Type locality: Havana.
Paspalum rudimentosum Steud. Syn. Gram. 24. 1854. Type locality: Oaxaca.
Paspalum supinum Rich.; Hornem. Hort. Hafn. 77. 1813. Type locality: Baltimore, Maryland.
Paspalum taprophyllum Steud. Syn. Gram. 19. 1854. Type locality: Martinique.
Paspalum triglume Steud. Syn. Gram. 27. 1854. Type locality: Oaxaca.

55. PANICUM* L. Sp. Pl. 55. 1753.

Milium Mill. Gard. Dict. Abr. ed. 4. 1754. Not *Milium* L. 1753.
Urochloa Beauv. Agrost. 52. 1812.
Eatonia Raf. Jour. de Phys. **89**: 104. 1819.
Talasium Spreng. Syst. **4**: Cur. Post. 22. 1827.
Thalasium Spreng. Syst. **4**: Cur. Post. 30. 1827.
Eriolytrum Desv.; Kunth, Rév. Gram. 219. 1830.
Steinchisma Raf. Bull. Bot. Seringe 220. 1830.
Dilencaden Raf.; Steud. Nom. Bot. ed. 2. **1**: 508. 1840.
Steinschisma Raf.; Steud. Nom. Bot. ed. 2. **2**: 635. 1841.
Phanopyrum Nash, in Small, Fl. SE. U. S. 104. 1903.
Chasea Nieuwl. Am. Midl. Nat. **2**: 63, 64. 1911.

Annual or perennial grasses, of various habit, the perennial species tufted or with creeping rhizomes. Inflorescence usually a panicle, sometimes a series of spike-like more or less 1-sided racemes; panicles usually open, sometimes contracted, the branchlets symmetrically arranged or aggregated along one side of the main branches. Spikelets (in spicate inflorescences) placed with the back of the fruit toward the rachis, articulated below the glumes, rarely also below the fruit, more or less compressed dorsoventrally, consisting of one perfect terminal floret and a second staminate or neuter floret below. Glumes 2, herbaceous, nerved, usually very unequal, the first sometimes minute, the second typically equaling the sterile lemma, the latter of the same texture and simulating a third glume, bearing in its axil a membranaceous or hyaline palea and sometimes a staminate flower, the palea rarely wanting; fertile lemma chartaceous-indurated, typically obtuse, the nerves obsolete, the margins inrolled over an inclosed palea of the same texture, a lunate line of thinner texture at the back just above the base, the root protruding through this at germination. Stamens 3. Styles 2. Stigmas plumose. Grain dorsoventrally compressed, with a punctiform hilum, free within the firmly closed lemma and palea.

Type species, *Panicum miliaceum* L.

Axis of branchlets extending beyond the base of the uppermost spikelet as a point or bristle 1–6 mm. long. — I. DISTANTIFLORA.
Axis of branchlets not extending into a bristle. (In *Panicum geminatum* and *P. paludivagum* the somewhat flattened axis pointed but not bristle-form.)
  Basal leaves usually distinctly different from those of the culm, forming a winter rosette (except in PEDICELLATA and CORDOVENSIA); culms at first simple, the spikelets of the primary panicle not perfecting seed, later usually becoming much-branched, the small secondary panicles with cleistogamous, fruitful spikelets; panicles open, the branchlets usually flexuous; perennials.
    First glume nearly as long as the spikelet; fruit apiculate. — XL. CORDOVENSIA.
    First glume much shorter than the spikelet.
      Leaf-blades elongate, not more than 5 mm. wide, 20 times as long as wide; autumnal phase branching from the base only (from the lower nodes in *P. Werneri*). — XXIII. DEPAUPERATA.
  Leaf-blades not elongate (or if so, more than 5 mm. wide and autumnal phase not branching from the base).
    Plants branching from the base, finally forming rosettes or cushions, the foliage soft and lax; leaf-blades prominently ciliate except in *P. laxiflorum*. — XXIV. LAXIFLORA.
    Plants branching from the culm-nodes or rarely remaining simple.
      Leaf-blades long, stiff; autumnal phase bushy-branched above.

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- Spikelets turgid, attenuate at base, mostly pustulose-pubescent; leaf-blades conspicuously striate, tapering from base to apex. — XXV. ANGUSTIFOLIA.
- Spikelets scarcely turgid, not attenuate at base; leaf-blades tapering to both ends. — XXVI. BICKNELLIANA.
- Leaf-blades not long and stiff (somewhat so in *P. oligosanthes*, *P. malacon*, *P. Commonsianum*, and *P. equilaterale*); autumnal phase usually not bushy-branched.
  - Plants not forming a distinct winter rosette; spikelets attenuate at base, papillose. — XXXIX. PEDICELLATA.
  - Plants forming a distinct winter rosette; spikelets not attenuate at base.
    - Spikelets turgid, blunt, strongly nerved (not strongly turgid in *P. oligosanthes*); leaf-blades rarely as much as 1.5 cm. wide (sometimes 2 cm. in *P. Ravenelii* and *P. xanthophysum*).
      - Leaf-sheaths glabrous or minutely puberulent; spikelets 1.5–2.5 mm. long, asymmetrically pyriform; culms wiry. — XXXIV. LANCEARIA.
      - Leaf-sheaths, or some of them, papillose-hispid (sometimes all glabrous in *P. Helleri*); spikelets 3–4 mm. long (2.7–3 mm. in *P. Wilcoxianum*). — XXXV. OLIGOSANTHIA.
    - Spikelets not turgid, blunt, nor strongly nerved (see, however, *P. roanokense* and *P. caerulescens*).
      - Ligule of conspicuous hairs, usually 3–5 mm. long.
        - Leaf-sheaths glabrous or only the lowermost somewhat pubescent. — XXIX. SPRETA.
        - Leaf-sheaths strongly pubescent. — XXX. LANUGINOSA.
      - Ligule obsolete or nearly so (manifest in *P. viscidellum*, *P. oricola*, *P. tsugetorum* and *P. curtifolium*).
        - Spikelets spheric at maturity; leaf-blades glabrous, firm, cordate; plants sparingly branching. — XXXII. SPHAEROCARPA.
        - Spikelets usually obovate or elliptic.
          - Leaf-blades of the mid-culm elongate, less than 1.5 cm. wide; culms usually tall; spikelets pointed, abruptly so in the velvety *P. scoparium* and *P. viscidellum*. — XXXVI. SCOPARIA.
          - Leaf-blades of the mid-culm not elongate (somewhat so in *P. equilaterale*).
            - Blades cordate, 1–3 cm. wide (5–12 mm. in *P. Ashei*); spikelets pubescent.
              - Spikelets 2.5–3 mm. long; leaf-sheaths glabrous or minutely puberulent. — XXXVII. COMMUTATA.
              - Spikelets 3–5 mm. long (sometimes but 2.7 mm. long in the hispid-sheathed *P. clandestinum*). — XXXVIII. LATIFOLIA.
            - Blades not cordate (somewhat in *P. annulum*), less than 1 cm. wide.
              - Sheaths crisp- or appressed-pubescent; blades firm; spikelets pubescent. — XXXI. COLUMBIANA.
              - Sheaths glabrous (sparsely pilose in *P. curtifolium* and the lower ones velvety in *P. mattamuskeetense* and often in *P. annulum*).
    - Vernal culms delicate (sometimes scarcely so in *P. albomarginatum* and *P. tenue*); spikelets 1.5 mm. long or less (1.6–1.7 mm. in *P. tenue*). — XXXIII. ENSIFOLIA.

Vernal culms slender but not delicate, rarely less than 40 cm. high; spikelets 2–2.9 mm. long (1.5 mm. in *P. microcarpon* and *P. caerulescens*).
Lower internodes short, upper elongate, producing a nearly naked culm, leafy at base; spikelets narrowly ovate, 2.7–2.9 mm. long. XXVII. NUDICAULIA.
Lower internodes not short; vernal culms about evenly leafy throughout; spikelets elliptic or obovate, not more than 2.5 mm. long. XXVIII. DICHOTOMA.

Basal leaves similar to culm-leaves, not forming a winter rosette; spikelets all fertile.
Fruit transversely rugose (faintly so in *P. plenum*).
Plants annual. III. FASCICULATA.
Plants perennial.
Inflorescence consisting of several spike-like racemes along a main axis. II. GEMINATA.
Inflorescence an open panicle. VII. MAXIMA.
Fruit not transversely rugose.
First glume truncate or triangular-tipped, not more than one fourth the length of the narrow, acute or acuminate, glabrous spikelet. IV. DICHOTOMIFLORA.
First glume not truncate (except in *P. repens*).
Plants annual.
Spikelets tuberculate. XIV. VERRUCOSA.
Spikelets not tuberculate.
Spikelets less than 1.5 mm. long. XV. TRICHOIDIA.
Spikelets more than 1.5 mm. long. V. CAPILLARIA.
Plants perennial.
Apex of the fertile lemma laterally compressed into a crest; spikelets 5.5–6 mm. long. XLV. ZIZANIOIDIA.
Apex of the fertile lemma not crested.
Spikelets short-pediceled along one side of the main branches of the panicle, forming narrow or spike-like racemes, sometimes somewhat aggregated toward the ends of branches (see also IX. TENERA).
First glume nearly equaling the sterile lemma.
Racemes spreading; fruit not more than one third the length of the acuminate spikelet. XLVI. GYMNOCARPA.
Racemes appressed; fruit nearly as long as the blunt spikelet. XLI. OBTUSA.
First glume much shorter than the sterile lemma.
Leaf-blades ovate to lanceolate, with short petioles; plants creeping and rooting at the nodes, the flower-culms sometimes upright. XII. STOLONIFERA.
Leaf-blades linear or elongate-lanceolate, not petioled.
Panicle long (15–30 cm.) and very narrow, the branches erect or nearly so; fruit rather thin and soft, the palea scarcely enclosed. XLIII. HEMITOMA.
Panicle usually open (at least not long and narrow), the main branches spreading; fruit indurated, the palea enclosed.
Plants erect, rather robust; panicle-branches not forming distinct racemes, nor naked below with the spikelets aggregated

above; pedicels and branchlets irregularly arranged along the main branches. X. AGROSTOIDIA.
Plants decumbent and rooting at the base, or producing stolons (culm erect in *P. cupreum*); panicle-branches forming distinct secund racemes, or naked below with the spikelets aggregated above (the lower branches often compound). XI. LAXA.
Spikelets in open or sometimes in contracted or congested panicles, but the main branches not in narrow or spike-like racemes.
First glume very small, not more than one-fourth the length of the spikelet; tropical species.
Spikelets pointed; first glume obscure, hyaline; leaf-blades long-tapering at base. XLIV. TUERCKHEIMIANA.
Spikelets obovate, blunt; first glume membranaceous; leaf-blades not tapering at base. XIII. PARVIGLUMIA.
First glume as much as one-third the length of the spikelet; a few species with pointed spikelets.
Fruit silky-villous; spikelets 6–7 mm. long, densely villous; creeping rhizomes present. XVI. URVILLEANA.
Fruit glabrous.
Panicle narrow and few-flowered; culms erect and wiry; leaf-blades drying involute. IX. TENERA.
Panicle open or contracted, several- to many-flowered.
Plants erect, not decumbent and rooting at base (except *P. altum* with culms 2–4 meters tall).
Spikelets sparsely hispid. XXI. RUDGEANA.
Spikelets glabrous.
Plants producing rhizomes (except *P. ichnanthoides*); mosstly tall, reed-like gra ses. VIII. VIRGATA.
Plants without rhizomes; culms less than 1 meter tall (taller in *P. hirsutum*); leaf-sheaths hirsute, at least in the taller species. VI. DIFFUSA.
Plants decumbent and rooting at base, usually forming a tangled mass (see also *P. altum*).
Spikelets viscid. XX. GLUTINOSA.
Spikelets not viscid.
Leaf-blades very large, as much as 1 meter long and 6 cm. wide. XLII. GRANDIA.
Leaf-blades not unusually wide.
Panicle-branches, especially the lower, several to many in distinct whorls, stiffly ascending, naked below. XXII. MEGISTA.
Panicle-branches not in conspicuous whorls.
Fruit apiculate; spikelets of 2 kinds, more than 2.5 mm. long. XL. CORDOVENSIA.
Fruit not apiculate; spikelets less than 2.5 mm. long.

Leaf-blades oblong-lanceolate, 2–6 mm. wide.	XVII. PARVIFOLIA.
Leaf-blades elongate, more than 6 mm. wide.	
Spikelets hispid along the margin of the glumes.	XVIII. HAENKEANA.
Spikelets glabrous or pubescent but not hispid on the margins of the glumes.	XIX. MILLEGRANA.

I. DISTANTIFLORA.

Leaf-blades elongate, usually more than 15 cm. long, narrowed toward the base.	
Spikelets about 2 mm. long or less.	
First glume acute; second glume about two thirds as long as the fruit.	
Spikelets 1.5 mm. long; leaf-blades involute.	1. *P. distantiflorum.*
Spikelets 2 mm. long; leaf-blades scarcely involute.	2. *P. utowanaeum.*
First glume rounded or truncate; second glume about as long as the fruit.	3. *P. Chapmani.*
Spikelets about 3.5 mm. long.	5. *P. Reverchoni.*
Leaf-blades usually less than 10 cm. long, not narrowed toward the base; spikelets 2.5–3 mm. long.	
Blades of mid-culm long-acuminate, usually 2–3 mm. wide.	4. *P. ramisetum.*
Blades of mid-culm abruptly acute, usually 4–6 mm. wide.	6. *P. firmulum.*

II. GEMINATA.

Nodes glabrous.	
Spikelets not more than 2.4 mm. long; glumes and sterile lemma not papery.	7. *P. geminatum.*
Spikelets 3 mm. long; glumes and sterile lemma papery.	8. *P. paludivagum.*
Nodes bearded.	9. *P. barbinode.*

III. FASCICULATA.

Spikelets 2–4 mm. long.	
Spikelets strongly reticulate-veined, 2–3 mm. long, glabrous.	11. *P. fasciculatum.*
Spikelets scarcely reticulate-veined, or so only near the apex.	
Spikelets not more than 2 mm. long, glabrous.	10. *P. reptans.*
Spikelets more than 3 mm. long, pubescent.	
Rachis scabrous but not bristly.	13. *P. adspersum.*
Rachis pilose with bristly hairs.	
Plant more or less velvety; leaf-sheaths not papillose.	12. *P. molle.*
Plant not velvety; leaf-sheaths papillose.	14. *P. arizonicum.*
Spikelets 5–6 mm. long.	15. *P. texanum.*

IV. DICHOTOMIFLORA.

Plants annual.	
Panicle narrow, less than 1 cm. wide.	16. *P. Vaseyanum.*
Panicle open, the branches ascending or spreading.	
Leaf-sheaths glabrous.	17. *P. dichotomiflorum.*
Leaf-sheaths papillose-hispid.	18. *P. bartowense.*
Plants perennial, the base decumbent and rooting.	
Spikelets acute; fruit not acuminate; culms usually less than 1 meter tall.	19. *P. aquaticum.*
Spikelets and fruit acuminate; culms usually more than 1 meter tall.	
Ligule 1 mm. long; nodes green; spikelets 3.3–3.7 mm. long.	20. *P. sucosum.*
Ligule 3 mm. long; nodes black in drying; spikelets 4–5 mm. long.	21. *P. elephantipes.*

V. CAPILLARIA.

Panicles erect.	
Inflorescence not composed of approximate nor implicate panicles.	
Panicles more than half the length of the entire plant.	
Panicles narrow, usually less than half as broad as long.	22. *P. flexile.*
Panicles as broad as long.	25. *P. capillare.*
Panicles not more than one-third the entire height of the plant.	
Spikelets not more than 2 mm. long, acute but not long-acuminate.	
Culms stout; leaf-blades about 1 cm. wide; spikelets turgid.	23. *P. Gattingeri.*
Culms slender; leaf-blades not more than 6 mm. wide; spikelets not turgid.	24. *P. philadelphicum.*

Spikelets 2.7–6 mm. long, acuminate.
First glume usually more than half the length of the spikelet, acuminate.
Spikelets not more than 4 mm. long.
First glume half to two thirds the length of the spikelet; spikelets not more than 3.3 mm. long. 26. *P. hirticaule.*
First glume more than three fourths the length of the spikelet; spikelets 4 mm. long. 27. *P. pampinosum.*
Spikelets 4.5–6 mm. long.
Spikelets scarcely more than 5 mm. long, approximate. 28. *P. decolorans.*
Spikelets 6 mm. long, scattered. 31. *P. parcum.*
First glume about one third the length of the spikelet, subacute or blunt. 29. *P. stramineum.*
Inflorescence elongate, composed of several approximate implicate panicles. 33. *P. cayennense.*
Panicles more or less drooping.
Spikelets not more than 3.5 mm. long; Mexican species. 30. *P. sonorum.*
Spikelets 4.5–5 mm. long; species introduced from the Old World. 32. *P. miliaceum.*

VI. DIFFUSA.

Second glume and sterile lemma elongate, at least three times as long as the fruit. 34. *P. capillarioides.*
Second glume and sterile lemma not elongate.
Culms slender, less than 1 meter tall; leaf-blades not more than 1 cm. wide.
Blades 1–3 mm. wide; plants spreading or ascending. 35. *P. diffusum.*
Blades mostly more than 5 mm. wide; plants erect.
Spikelets usually less than 3.5 mm. long.
Leaf-blades glabrous on both surfaces or with a few hairs on either surface, glaucous above.
Panicles usually equaled or exceeded by the uppermost blades; spikelets 2–2.6 mm. long. 36. *P. filipes.*
Panicles much exceeding the leaves; spikelets 3–3.5 mm. (rarely 3.7 mm.) long. 37. *P. Hallii.*
Leaf-blades hirsute on both surfaces (sometimes glabrescent), not at all glaucous. 39. *P. Ghiesbreghtii.*
Spikelets 4–4.2 mm. long, the midnerves of glumes and sterile lemma scabrous toward the apex. 38. *P. lepidulum.*
Culms stout, usually more than 1 meter tall; leaf-blades 2 cm. or more wide. 40. *P. hirsutum.*

VII. MAXIMA.

Culms from a creeping rootstock, not corm-like at base.
Nodes hirsute; ligules 4–6 mm. long; fruit strongly rugose. 41. *P. maximum.*
Nodes glabrous; ligules 2 mm. long; fruit very obscurely rugose. 42. *P. plenum.*
Culms with a corm-like base. 43. *P. bulbosum.*

VIII. VIRGATA.

Spikelets not more than 2.5 mm. long; first glume less than half the length of the spikelet.
Panicles loosely flowered; first glume truncate, about one fifth the length of the spikelet. 44. *P. repens.*
Panicles rather densely flowered; first glume triangular, about one third the length of the spikelet. 45. *P. Gouini.*
Spikelets 3–7 mm. long (sometimes less than 3 mm. in *P. virgatum cubense*); first glume more than half the length of the spikelet.
Panicles diffuse, or only slightly contracted; plants sometimes of salt marshes but not littoral.
Spikelets less than 5 mm. long (in exceptional specimens 6 mm. long); culms erect, usually producing numerous scaly rhizomes.
Culms erect at base, slender, not more than 2 mm. in diameter; ligules 2–4 mm. long.
Rhizomes present; panicle broader, the branches usually spreading or drooping. 46. *P. virgatum.*
Rhizomes absent; panicle narrow, one fourth to one third as long as wide, the branches ascending. 47. *P. ichnanthoides.*
Culms decumbent at base, as much as 6 mm. in diameter, glaucous, 2–4 meters tall; ligules less than 1 mm. long. 48. *P. altum.*
Spikelets 6–8 mm. long; culms solitary, with a creeping base. 49. *P. Havardii.*
Panicles elongate, strongly contracted; seacoast plants.
Culms rarely 1 meter tall, solitary from the nodes of the horizontal rhizome. 50. *P. amarum.*
Culms 1–2 meters tall, in dense tufts. 51. *P. amarulum.*

IX. TENERA.

Panicle 3–8 cm. long; spikelets 2.2–2.8 mm. long, pointed. 52. *P. tenerum.*
Panicle not more than 2 cm. long; spikelets 1.5–2 mm. long, not pointed.

Spikelets about 2 mm. long; leaf-blades mostly hirsute. 53. *P. stenodoides.*
Spikelets about 1.5 mm. long; leaf-blades glabrous. 54. *P. stenodes.*

X. AGROSTOIDIA.

Rhizomes absent; culms strongly compressed with keeled sheaths; spikelets not obliquely disposed.
Ligules erose or lacerate, not ciliate; basal leaves in short tufts, the upper usually nearly equaling the terminal panicle.
Fruit not stipitate; spikelets not conspicuously secund.
Spikelets 1.8–2 mm., in occasional specimens 2.2 mm. long; panicle-branches ascending or spreading. 55. *P. agrostoides.*
Spikelets about 2.5 mm. long; panicle-branches erect or nearly so. 56. *P. condensum.*
Fruit stipitate; spikelets 2.5–2.8 mm. long, conspicuously secund. 57. *P. stipitatum.*
Ligules ciliate; basal leaves half as long as the culm or more; panicle much exceeding the upper leaves.
Spikelets not more than 2.7 mm., usually 2.5 mm. long, the first glume less than half that length; ligules 2–3 mm. long. 58. *P. longifolium.*
Spikelets 3–3.5 mm. long, the first glume two thirds to three fourths that length; ligules less than 1 mm. long. 59. *P. Combsii.*
Rhizomes present; culms but little compressed; spikelets set obliquely on their appressed pedicels.
Panicles open; spikelets 3.4–3.8 mm. long (shorter in exceptional specimens). 60. *P. anceps.*
Panicles more or less contracted; spikelets not more than 2.8 mm. long. 61. *P. rhizomatum.*

XI. LAXA.

Second glume gibbous, inflated; spikelets pubescent. 62. *P. ineptum.*
Second glume not gibbous nor inflated; spikelets glabrous.
Spikelets not expanded at maturity by an enlarged sterile palea, pointed.
Leaf-blades more than 15 mm. wide; panicle 10–20 cm. wide; spikelets about 1.8 mm. long. 64. *P. stagnatile.*
Leaf-blades less than 15 mm. wide; panicle mostly less than 10 cm. wide.
Nodes glabrous; spikelets 2.5 mm. long. 63. *P. longum.*
Nodes densely pubescent; spikelets not more than 1.5 mm. long. 65. *P. polygonatum.*
Spikelets expanded at maturity by the enlarged sterile palea, usually blunt.
Panicle-branches subracemose, the spikelets secund; blades at least 5 mm. wide; enlarged sterile palea not conspicuous.
Leaf-blades narrowed toward the base. 69. *P. laxum.*
Leaf-blades cordate or truncate at the base.
Spikelets 2 mm. long; panicle-branches erect or nearly so. 70. *P. Stevensianum.*
Spikelets not more than 1.6 mm. long, usually less; panicle-branches spreading or ascending.
Panicles rarely one-fourth as wide as long; spikelets conspicuously secund and regularly disposed.
Culms as much as 2 meters long; panicles 25–30 cm. long. 66. *P. milleflorum.*
Culms not more than 1 meter long; panicles 5–15 cm. long. 67. *P. pilosum.*
Panicles one third to half as wide as long; spikelets not conspicuously secund, somewhat irregularly disposed; leaf-blades cordate-clasping. 68. *P. boliviense.*
Panicle-branches not racemose; blades scarcely wider than their sheaths; sterile palea conspicuously enlarged.
Spikelets not more than 2.4 mm. long; panicles green or pale.
Panicle-branches branchlet-bearing throughout their length or nearly so. 71. *P. exiguiflorum.*
Panicle-branches spikelet- or branchlet-bearing along the upper half or toward the ends only. 72. *P. hians.*
Spikelets 3 mm. long, congested; panicles dark-purple. 73. *P. cupreum.*

XII. STOLONIFERA.

Spikelets glabrous, glandless; second glume and sterile lemma boat-shaped.
Leaf-blades not more than 5 cm., usually 2–3 cm., long; second glume rather blunt and shorter than the sterile lemma. 74. *P. stoloniferum.*
Leaf-blades 5–11 cm. long; second glume acute, nearly equaling the sterile lemma. 75. *P. frondescens.*
Spikelets hispid and with 2 crateriform glands on the sterile lemma; second glume and sterile lemma not boat-shaped.
Spikelets not more than 2 mm. long; leaf-blades not more than 4 cm. long. 76. *P. pulchellum.*
Spikelets 3.6 mm. long; leaf-blades 4–10 cm. long. 77. *P. biglandulare.*

XIII. PARVIGLUMIA.

Fruit with scattered appressed silky hairs.
  Culms creeping, with ascending flowering branches, not more than 0.5 meter tall; leaf-blades falcate. — 79. *P. Schmitzii.*
  Culms clambering, usually 1–3 meters long; leaf-blades not falcate.
    Panicles 2.5–7 cm. long; leaf-blades not more than 1 cm. wide, symmetric at base. — 78. *P. virgultorum.*
    Panicles 10–15 cm. long; leaf-blades 1.2–2.5 cm. wide, asymmetric at base. — 80. *P. Schiffneri.*
Fruit glabrous. — 81. *P. parviglume.*

XIV. VERRUCOSA.

Spikelets about 2 mm. long, glabrous. — 82. *P. verrucosum.*
Spikelets more than 3 mm. long, hispid. — 83. *P. brachyanthum.*

XV. TRICHOIDIA.

Spikelets pyriform, attenuate at base, glabrous. — 84. *P. pyrularium.*
Spikelets obovate-elliptic, pubescent. — 85. *P. trichoides.*

XVI. URVILLEANA.

One species. — 86. *P. Urvilleanum.*

XVII. PARVIFOLIA.

One species. — 87. *P. parvifolium.*

XVIII. HAENKEANA.

One species. — 88. *P. Haenkeanum.*

XIX. MILLEGRANA.

Spikelets about 1.5 mm. long, acute. — 89. *P. trichanthum.*
Spikelets about 2 mm. long, obtuse. — 90. *P. Millegrana.*

XX. GLUTINOSA.

One species. — 91. *P. glutinosum.*

XXI. RUDGEANA.

One species. — 92. *P. Rudgei.*

XXII. MEGISTA.

One species. — 93. *P. megiston.*

XXIII. DEPAUPERATA.

Spikelets about 3.5 mm. long, beaked. — 94. *P. depauperatum.*
Spikelets 3 mm. long or less (sometimes 3.2 mm. long in *P. perlongum*), not beaked.
  Culms single or few in a tuft; spikelets turgid, blunt, 2.7–3.2 mm. long; prairie plants. — 95. *P. perlongum.*
  Culms in large tufts; spikelets not turgid, 2.2–2.7 mm. long; plants of dry woods.
    Leaf-sheaths pilose; spikelets 2.2–2.7 mm. long, pilose. — 96. *P. linearifolium.*
    Leaf-sheaths glabrous; spikelets 2.2–2.3 mm. long, glabrous or sparingly pilose. — 97. *P. Werneri.*

XXIV. LAXIFLORA.

Leaf-sheaths retrorsely pilose; spikelets papillose-pilose.
  Leaf-blades glabrous or nearly so on the surface and margin; spikelets 2.2 mm. long. — 98. *P. laxiflorum.*
  Leaf-blades ciliate, more or less pilose on the surface; spikelets 2 mm. long. — 99. *P. xalapense.*
Leaf-sheaths not retrorsely pilose; spikelets pubescent or glabrous.
  Spikelets pubescent, about 2 mm. long. — 100. *P. ciliatum.*
  Spikelets glabrous.
    Leaf-blades glabrous on the surface. — 101. *P. polycaulon.*
    Leaf-blades pilose on the surface. — 102. *P. strigosum.*

XXV. ANGUSTIFOLIA.

Nodes bearded; plants grayish-villous; autumnal leaf-blades flat.
  Spikelets 2 mm. long. — 104. *P. chrysopsidifolium.*
  Spikelets 2.5–2.8 mm. long. — 105. *P. consanguineum.*
Nodes not bearded; plants villous only at base, or nearly glabrous; autumnal leaf-blades involute or flat.
  Autumnal blades flat; lower panicle-branches spreading or deflexed. — 106. *P. angustifolium.*
  Autumnal blades involute; lower panicle-branches more or less ascending.
    Spikelets 3.3–3.5 mm. long, pointed. — 107. *P. fusiforme.*
    Spikelets less than 3 mm. long, not pointed, or obscurely so.
      Plants pubescent, at least on the lower half.

Spikelets about 2.4 mm., rarely only 2.1 mm. long; vernal leaf-blades 7–12 cm. long; autumnal blades not falcate. 108. *P. arenicoloides.*
Spikelets not more than 2 mm. long; vernal leaf-blades 4–6 cm. long; autumnal blades much crowded, falcate. 103. *P. aciculare.*
Plants glabrous or nearly so; autumnal culms erect.
Spikelets not subsecund; panicle loose and open. 109. *P. ovinum.*
Spikelets subsecund along the suberect panicle-branches. 110. *P. neuranthum.*

XXVI. BICKNELLIANA.

Spikelets 2.5–2.8 mm. long; leaf-blades not more than 9 mm. wide. 111. *P. Bicknellii.*
Spikelets 3 mm. long; leaf-blades as much as 12 mm. wide. 112. *P. calliphyllum.*

XXVII. NUDICAULIA.

One species. 113. *P. nudicaule.*

XXVIII. DICHOTOMA.

Nodes, at least the lower ones, bearded.
Spikelets 1.5–1.6 mm. long, glabrous (occasional individuals with pubescent spikelets). 114. *P. microcarpon.*
Spikelets 2 mm. or more long.
Spikelets glabrous, 2 mm. long; autumnal phase top-heavy-reclining. 122. *P. barbulatum.*
Spikelets pubescent.
Leaf-blades all velvety; autumnal phase sparingly branched. 117. *P. annulum.*
Leaf-blades glabrous, or only the lower pubescent or velvety; autumnal phase freely branching.
Spikelets 2 mm. long; autumnal phase profusely branching.
Fruits slightly exposed at maturity; upper leaf-sheaths viscid-spotted; autumnal phase erect or reclining. 115. *P. nitidum.*
Fruits covered at maturity; leaf-sheaths not viscid-spotted; autumnal phase decumbent, with flabellate-fascicled branches; a Mexican species. 116. *P. multirameum.*
Spikelets 2.2 mm. or more long; autumnal phase less profusely branching.
Leaf-sheaths of lower leaves and all the nodes pubescent. 118. *P. mattamuskeetense.*
Leaf-sheaths and upper nodes glabrous. 119. *P. Clutei.*
odes not bearded.
Spikelets pubescent.
Culms erect, never becoming vine-like.
Primary leaf-blades spreading; panicles purplish; fruit exposed at summit. 119. *P. Clutei.*
Primary leaf-blades erect; panicles green; fruit covered (wood forms with spreading blades may be distinguished from *P. dichotomum* by pubescent spikelets, 2.2 mm. long) 120. *P. boreale.*
Culms soon prostrate, vine-like; branches divaricate.
Plants bright-green; culms lax; spikelets not more than 2.1 mm. long. 126. *P. lucidum.*
Plants grayish-green; culms stiff; spikelets 2.5 mm. long. 127. *P. sphagnicola.*
Spikelets glabrous.
Culms erect, or the autumnal phase top-heavy, never prostrate.
Spikelets 2 mm. or more long; panicles open.
Leaf-blades spreading; spikelets not turgid.
Spikelets not more than 2 mm. long, not pointed.
Autumnal phase erect, branched like a little tree; primary leaf-blades rarely more than 5 mm. wide; second glume shorter than fruit and sterile lemma. 121. *P. dichotomum.*
Autumnal form top-heavy-reclining; primary leaf-blades 6–10 mm. wide; second glume equaling fruit and sterile lemma. 122. *P. barbulatum.*
Spikelets 2.2 mm. or more long, pointed; leaf-sheaths bearing pale glandular spots. 123. *P. yadkinense.*
Leaf-blades erect, firm; spikelets turgid, strongly nerved; plants grayish olive-green. 124. *P. roanokense.*
Spikelets not more than 1.6 mm. long; panicles narrow; plants glaucous bluish-green. 125. *P. caerulescens.*
Culms soon prostrate.
Plants bright-green; culms lax; spikelets not more than 2.1 mm. long. 126. *P. lucidum.*
Plants grayish-green; culms stiff; spikelets 2.5 mm. long. 127. *P. sphagnicola.*

XXIX. SPRETA.

Panicle narrow, one fourth to one third as wide as long. 128. *P. spretum.*
Panicle open, two thirds as wide as long, or more.
Spikelets 1.5 mm. long. 129. *P. Lindheimeri.*
Spikelets 1.3 mm. long or less.
Culms and leaf-sheaths glabrous. 131. *P. longiligulatum.*
Culms and leaf-sheaths appressed-pubescent.
Spikelets 1.2–1.3 mm. long. 130. *P. leucothrix.*
Spikelets not more than 1 mm. long. 132. *P. Wrightianum.*

XXX. LANUGINOSA.

Spikelets not more than 2 mm. long.
Plants grayish, velvety-pubescent.
Spikelets 1.4–1.5 mm. long; autumnal leaf-blades involute-pointed (see also *P. albemarlense*). 140. *P. auburne.*
Spikelets 1.8–2 mm. long; autumnal leaf-blades flat.
Plants dark-green or olive-green when dry; spikelets 1.9–2 mm. long.
Branching sparingly from middle nodes, erect; vernal leaf-blades sparingly pilose on upper surface. 141. *P. Thurowii.*
Branching freely from lower nodes, decumbent; vernal leaf-blades puberulent on both surfaces. 142. *P. olivaceum.*
Plants light-green or yellow-green when dry.
Autumnal phase prostrate, branching from the base and lower nodes, forming close mats; leaf-blades not ciliate; a species of hot springs. 147. *P. thermale.*
Autumnal phase ascending or spreading, branching from middle and upper nodes; leaf-blades reduced, fascicled, strongly ciliate.
Vernal culms 40–70 cm. high; autumnal culms usually 40–50 cm. long; southeastern United States. 138. *P. lanuginosum.*
Vernal culms 20–40 cm. high; autumnal culms usually 20–30 cm. long, the early branches zigzag; West Indies. 139. *P. acuminatum.*
Plants pubescent, often villous, but not velvety.
Culms conspicuously pilose with long, horizontally spreading hairs, branching before expansion of primary panicles. 143. *P. praecocius.*
Culms variously pubescent, if pilose the hairs not long and horizontally spreading.
Vernal leaf-blades glabrous or nearly so on the upper surface, firm in texture.
Autumnal culms branching from the lower nodes, forming a spreading bunch 10–15 cm. tall; Pacific Slope. 145. *P. occidentale.*
Autumnal culms branching from the middle nodes, forming widely spreading mats; Atlantic Slope (see also form of *P. Huachucae silvicola*). 137. *P. tennesseense.*
Vernal leaf-blades pubescent on the upper surface, sometimes pilose near the base and margins only.
Spikelets 1.3–1.5 mm. long; vernal blades long-pilose on the upper surface.
Autumnal form widely decumbent-spreading, forming a mat; vernal culms soon geniculate-spreading; plants olivaceous. 134. *P. albemarlense.*
Autumnal form erect or leaning, never forming a mat; plants yellowish-green.
Axis of panicle puberulent only; panicle-branches not tangled, the lower ascending. 133. *P. meridionale.*
Axis of panicle pilose; panicle-branches tangled, the lower drooping. 135. *P. implicatum.*
Spikelets 1.6–2 mm. long; vernal blades pilose or pubescent.
Upper surface of blades appressed-pubescent, or pilose toward the base only; spikelets 1.6–1.8 mm. long; autumnal phase not decumbent-spreading. 136. *P. Huachucae.*
Upper surface of blades pilose; spikelets 1.8–2 mm. long; autumnal phase decumbent-spreading.
Spikelets obtuse; culms not weak and lax.
Culms leafy below, branching from the base and lower nodes; Maine to Minnesota. 144. *P. subvillosum.*
Culms evenly leafy, branching from the upper nodes; Pacific Slope. 146. *P. pacificum.*
Spikelets pointed; culms weak and lax. 148. *P. languidum.*
Spikelets 2.2 mm. or more long.
Spikelets 2.2–2.4 mm. long.
Pubescence on culms horizontally spreading; autumnal phase freely branching. 149. *P. villosissimum.*
Pubescence on culms appressed or ascending; autumnal form rather sparingly branching.
Upper internodes not shortened, the copious pubescence silky. 150. *P. pseudopubescens.*
Upper internodes shortened, the leaves approximate, the blades often equaling the panicle; pubescence sparse and stiff. 152. *P. scoparioides.*
Spikelets 2.7–2.9 mm. long.
Culms stiff; blades conspicuously ciliate; southern Atlantic coast. 151. *P. ovale.*
Culms weak; blades not ciliate; Pacific coast. 153. *P. shastense.*

XXXI. COLUMBIANA.

Spikelets 2–3.2 mm. long, mostly elliptic.
Winter blades 1–3 cm. long.
Spikelets 3.2 mm. long; first glume conspicuously distant. 154. *P. malacon.*

Spikelets not more than 2.5 mm. long; first glume not distant.
Spikelets about 2.4 mm. (2.2–2.4 mm.) long; panicle open, the branches stiffly spreading. 155. *P. Commonsianum.*
Spikelets 2–2.1 mm. long; panicle rather dense, the branches ascending. 156. *P. Addisonii.*
Winter blades elongate, 5–10 cm. long; spikelets 2 mm. long; plants blue-green. 157. *P. wilmingtonense.*
Spikelets not more than 1.9 mm. long, obovate, turgid.
Culms crisp-puberulent or appressed-pubescent with crimped hairs; plants bluish- or grayish-green; panicles about 3–7 cm. long.
Spikelets 1.8–1.9 mm. long. 158. *P. tsugetorum.*
Spikelets 1.5–1.6 mm. long. 159. *P. columbianum.*
Culms appressed- or ascending-pilose; spikelets not more than 1.5 mm. long, rounded and turgid; plants olivaceous; panicles rarely more than 3 cm. long. 160. *P. oricola.*

XXXII. SPHAEROCARPA.

Culms spreading; leaf-blades obscurely nerved; panicle nearly as broad as long. 161. *P. sphaerocarpon.*
Culms erect or ascending; leaf-blades rather strongly nerved; panicle never more than two thirds as broad as long, usually less.
Spikelets 1.5–1.6 mm. long; leaf-blades lanceolate, the upper not reduced. 162. *P. polyanthes.*
Spikelets 1–1.2 mm. long; leaf-blades tapering from base to apex, the upper much smaller than the lower. 163. *P. erectifolium.*

XXXIII. ENSIFOLIA.

Ligules about 1 mm. long; leaf-sheaths, or some of them, sparsely spreading-pilose. 171. *P. curtifolium.*
Ligules obsolete or nearly so; pubescence if present not spreading.
Leaf-blades prominently white-margined, firm; spikelets densely puberulent.
Leaf-blades puberulent beneath, often above; sheaths and sometimes lower internodes ascending pubescent. 164. *P. tenue.*
Leaf-blades glabrous; sheaths glabrous or minutely ciliate only.
Uppermost culm leaf-blades much reduced; culms branching from lower nodes only, the branches repeatedly branching. 165. *P. albomarginatum.*
Uppermost culm leaf-blades about as long as the others; culms bearing short branches from the upper and middle nodes. 166. *P. trifolium.*
Leaf-blades not white-margined or very obscurely so (or if white margin is evident, spikelets only 1.1 mm. long); spikelets glabrous or puberulent.
Culms branching only at the base; plants soft, light-green. 170. *P. vernale.*
Culms branching at the nodes; plants firm or at least not soft.
Spikelets glabrous.
Spikelets 1.1–1.2 mm. long; leaf-blades rarely as much as 5 cm. long. 172. *P. chamaelonche.*
Spikelets 1.2–1.5 mm. long.
Leaf-blades elongate, at least some of them 8–10 cm. long. 173. *P. glabrifolium.*
Leaf-blades not more than 3 cm. long. 169. *P. ensifolium.*
Spikelets puberulent.
Spikelets 1.1 mm. long; winter leaf-blades bluish-green, not glossy. 168. *P. concinnius.*
Spikelets 1.3–1.5 mm. long.
Leaf-blades involute, falcate, with long stiff marginal hairs near the base; plants stiff and wiry. 174. *P. breve.*
Leaf-blades not involute, or at top only, not falcate.
Plants bright-green; winter blades conspicuous, glossy-green. 167. *P. flavovirens.*
Plants olive; winter blades not conspicuous nor glossy. 169. *P. ensifolium.*

XXXIV. LANCEARIA.

Spikelets 1.5–1.6 mm. long. 175. *P. portoricense.*
Spikelets 2 mm. or more long.
Leaf-blades not more than 6 mm. wide (or, if wider, puberulent on the upper surface); fruit smooth and shining.
Spikelets not more than 2.1 mm. long.
Leaf-blades firm, glabrous above; culms stiffly ascending. 176. *P. lancearium.*
Leaf-blades lax, softly puberulent on both surfaces; culms decumbent. 177. *P. patulum.*
Spikelets 2.4–2.6 mm. long; leaf-blades narrowed toward the base. 179. *P. patentifolium.*
Leaf-blades, or some of them, at least 8 mm. wide, glabrous on the upper surface; fruit papillose-roughened. 178. *P. Webberianum.*

XXXV. OLIGOSANTHIA.

Nodes bearded; leaf-blades velvety-pubescent beneath.

Plants lax, soft-velvety throughout; spikelets not more than 3 mm. long. 181. *P. malacophyllum.*
Plants stiff, the pubescence harsh; spikelets about 4 mm. long. 185. *P. Ravenelii.*
Nodes not bearded (or but obscurely so in *P. Wilcoxianum*); leaf-blades not velvety.
Panicle narrow, the branches erect, or spreading only at anthesis; leaf-blades erect.
Spikelets not more than 3 mm. long; leaf-blades not more than 6 mm. wide. 180. *P. Wilcoxianum.*
Spikelets 3.7–4 mm. long; leaf-blades 8–20 mm. wide.
Blades papillose-hispid. 186. *P. Leibergii.*
Blades glabrous on both surfaces. 187. *P. xanthophysum.*
Panicle about as wide as long.
Spikelets broadly obovate, turgid, blunt; plants green, the pubescence, if present, not appressed.
Leaf-blades erect, not more than 6 mm. wide; plants copiously hirsute throughout. 180. *P. Wilcoxianum.*
Leaf-blades ascending or spreading, rarely less than 8 mm. wide, usually wider; plants not hirsute throughout.
Spikelets not more than 3 mm. long; leaf-blades rather thin; sheaths, or some of them, glabrous or sparsely hispid. 182. *P. Helleri.*
Spikelets 3.2–3.3 mm. long; leaf-blades firm; sheaths, or some of them, more or less hispid. 183. *P. Scribnerianum.*
Spikelets narrowly obovate, subacute; plants olivaceous, appressed-pubescent. 184. *P. oligosanthes.*

XXXVI. SCOPARIA.

Pubescence soft-villous or velvety; spikelets abruptly pointed.
Vernal culms erect or ascending; plants velvety throughout; spikelets about 2.5 mm. long. 188. *P. scoparium.*
Vernal culms decumbent at base; upper leaf-sheaths more or less glabrate; spikelets less than 2 mm. long. 189. *P. viscidellum.*
Pubescence when present not velvety.
Spikelets elliptic; fruit 2 mm. long. 190. *P. aculeatum.*
Spikelets ovate, that is, broadest below the middle; fruit 2 mm. long or less.
Leaf-sheaths, or some of them, hispid, rarely glabrous; autumnal phase with crowded branchlets. 191. *P. scabriusculum.*
Leaf-sheaths glabrous; autumnal phase sparingly branching. 192. *P. cryptanthum.*

XXXVII. COMMUTATA.

Plants glaucous, glabrous; basal leaf-blades conspicuously ciliate; vernal culms usually solitary. 195. *P. mutabile.*
Plants not glaucous.
Leaf-blades lanceolate.
Culms crisp-puberulent; leaf-blades usually rigid, symmetric, rarely more than 10 mm. wide; spikelets about 2.5 mm. long. 193. *P. Ashei.*
Culms glabrous or softly puberulent; leaf-blades firm or lax; spikelets 2.7–3.2 mm. long.
Culms erect, or in the autumnal phase leaning; leaf-blades symmetric, broadly cordate. 194. *P. commutatum.*
Culms decumbent; leaf-blades usually asymmetric and falcate, narrowed to the scarcely cordate base. 196. *P. Joorii.*
Leaf-blades nearly linear, that is, with parallel margins; first glume about half as long as the spikelet.
Primary panicles short-exserted; leaf-sheaths not mottled. 197. *P. equilaterale.*
Primary panicles long-exserted; leaf-sheaths mottled with white. 198. *P. albomaculatum.*

XXXVIII. LATIFOLIA.

Leaf-sheaths, at least the lower and those of the branches, strongly papillose-hispid. 199. *P. clandestinum.*
Leaf-sheaths glabrous or softly villous.
Nodes glabrous; spikelets 3.4–3.7 mm. long. 200. *P. latifolium.*
Nodes bearded; spikelets 4–4.5 mm. long. 201. *P. Boscii.*

XXXIX. PEDICELLATA.

Culms erect or leaning; leaf-blades thin, 5–9 cm. long, narrowed toward the base. 202. *P. pedicellatum.*
Culms decumbent; leaf-blades thick, not more than 5 cm. long, not narrowed toward the base. 203. *P. nodatum.*

XL. CORDOVENSIA.

Plants glabrous or the leaves sparsely pilose. 204. *P. cordovense.*
Plants velvety-pubescent. 205. *P. chiriquiense.*

XLI. OBTUSA.

One species. 206. *P. obtusum.*

XLII. GRANDIA.

One species. 207. *P. grande.*

One species.	XLIII. HEMITOMA.	208. *P. hemitomon.*
One species.	XLIV. TUERCKHEIMIANA.	209. *P. Tuerckheimii.*
One species.	XLV. ZIZANIOIDIA.	210. *P. zizanioides.*
One species.	XLVI. GYMNOCARPA.	211. *P. gymnocarpon.*

1. **Panicum distantiflorum** A. Rich. in Sagra, Hist. Cuba 11: 304. 1850.

Plants cespitose, glabrous; culms 60–80 cm. high, slender, wiry, compressed, producing slender, sometimes fascicled branches from all the nodes; leaf-sheaths longer than the internodes, but narrow and sheathing the joints only at the base, flattened, a minute tuft of hairs on each auricle; ligule a ring of very short hairs; blades erect, firm, narrower than the summit of the sheath, linear to almost capillary, as much as 30 cm. long, 1–2 mm. wide, mostly strongly involute, at least the lower commonly more or less curled, usually with a few hairs at the base; panicles numerous, 2–7 cm. long, very narrow, the branches appressed, scarcely overlapping, the lower 8–15 mm. long, the branchlets bearing 1–3 subsessile spikelets, the setiform prolongation of the axis rarely equaling the spikelet, usually not more than 1 mm. long; spikelets 1.5 mm. long, 0.7 mm. wide, ellipsoid, acute, glabrous; first glume about half as long as the spikelet, acute, strongly 5-nerved; second glume obtuse, two thirds to three fourths as long as the fruit and the strongly 7-nerved, acute, sterile lemma; fruit 1.3 mm. long, 0.6 mm. wide, elliptic, pointed, finely rugose.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Bahamas, Cuba, and Hispaniola; also in Curaçao.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 1.*

2. **Panicum utowanaeum** Scribn. in Millsp. Field Columb. Mus. Publ. Bot. 2: 25. 1900.

Panicum Sintenisii Nash, Bull. Torrey Club 30: 382. 1903.

Plants tufted from the nodes of short, slender rootstocks, glabrous; culms ascending or somewhat spreading, 25–60 cm. high, slender, compressed, sparingly branching; leaf-sheaths shorter than the internodes, compressed, especially the lowermost, ciliate at the auriculate summit; ligule a minute ring of stiff hairs; blades erect or spreading above, 10–20 cm. long, 1–4 mm. wide, slightly scabrous on the margin (sometimes sparsely pilose on the upper surface at the base), narrowed and more or less involute at the base and much narrower than the sheath; panicles 3–10 cm. long, very slender, the scattered, erect branches 1–3 cm. long, the bristle usually equaling or exceeding the spikelet; spikelets subsessile, 2–2.1 mm. long, 0.6–0.7 mm. wide, elliptic, somewhat beaked at the summit, glabrous, pale with green nerves; first glume half as long as the spikelet, acute, 3-nerved; second glume two thirds to three fourths as long as the fruit, 3–5-nerved, the sterile lemma 5-nerved, abruptly pointed; fruit 1.9 mm. long, 0.6 mm. wide, elliptic, minutely rugose, slightly beaked at the acute apex.

TYPE LOCALITY: Guanica, Porto Rico.
DISTRIBUTION: Cuba, Hispaniola, Porto Rico, and Guadeloupe; also in Venezuela.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 2.*

3. **Panicum Chapmani** Vasey, Bull. Torrey Club 11: 61. 1884.

Plants cespitose, glabrous; culms ascending or spreading, 40–100 cm. high, slender, compressed, wiry, sparingly branching; leaf-sheaths about as long as the internodes, compressed, pubescent at the scarcely auriculate summit, sometimes ciliate on the margin; ligule a ring of very short hairs; blades erect, rather firm, linear, 15–40 cm. long, 2–5 mm. wide, acuminate, narrowed to the base, more or less involute when dry, scabrous on the margin and upper surface, the latter usually sparsely pilose toward the base; panicles elongate, sometimes as much as 30 cm. long, of remote, appressed, raceme-like branches bearing few to several subsessile, somewhat crowded spikelets, the setiform prolongation of the axis 3–6 mm. long; spikelets 2–2.2 mm. long, 1–1.2 mm. wide, obovate, abruptly pointed, turgid, pale-green or yellowish;

first glume about one third the length of the spikelet, obtuse or truncate, 3-nerved; second glume slightly shorter than the fruit and sterile lemma, strongly 5–7-nerved, obscurely reticulate; fruit 1.8 mm. long, 1–1.1 mm. wide, elliptic, abruptly acute, minutely rugose, the margins of the lemma inrolled only at base.

TYPE LOCALITY: Florida.
DISTRIBUTION: Southern Florida and the Bahamas.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 3.*

4. **Panicum ramisetum** Scribn. Circ. U. S. Dep. Agr. Agrost. 27: 9. 1900.

Panicum subspicatum Vasey, Bull. U. S. Dep. Agr. Bot. 8: 25. 1889. Not *P. subspicatum* Desv. 1831.

Plants pale-green, tufted, from short horizontal rootstocks; culms erect or ascending, 25–60 cm. high, commonly branching at the base and lower nodes, scabrous at least below the nodes; leaf-sheaths nearly as long as the internodes or the lower overlapping, not compressed, sparingly papillose-pilose, especially along the margins and at the summit; ligule about 1 mm. long, with longer hairs at the sides; blades rather firm, erect or ascending, 5–12 cm. long, the lower shorter and more spreading, 2–4 mm. wide, tapering to an involute tip, not narrowed at base, but about as broad as the sheath, sparsely papillose-pilose on both surfaces, at least toward the base, sometimes sparsely ciliate; panicles very slender, 5–20 cm. long, not conspicuously interrupted, their branches erect, the ultimate branchlets of 1–4 subsessile spikelets, the setiform prolongation of the axis usually not exceeding the short-pediceled spikelet; spikelets 2.4–2.6 mm. long, 1.4–1.5 mm. wide, obovate, subacute, turgid, plano-convex; first glume clasping, about half the length of the spikelet, subacute or acute, 5-nerved; second glume and sterile lemma subequal, scarcely covering the fruit at maturity, strongly 7–9-nerved; fruit 2.2–2.3 mm. long, 1.4 mm. wide, elliptic, acute.

TYPE LOCALITY: Texas.
DISTRIBUTION: Southern Texas and adjacent Mexico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 355*; Contr. U. S. Nat. Herb. 15: *f. 5.*

5. **Panicum Reverchoni** Vasey, Bull. U. S. Dep. Agr. Bot. 8: 25. 1889.

Plants tufted from short rootstocks, branching at the base; culms stiffly erect, 30–70 cm. high, simple or occasionally bearing one or two sterile branches, slender, subcompressed, glabrous or the lower internodes strigose, the nodes appressed-pubescent; leaf-sheaths mostly longer than the internodes, ciliate on the margin toward the summit, otherwise glabrous, often slightly scabrous, or the lowermost sometimes sparsely strigose; ligule about 0.3 mm. long; blades erect, stiff, 5–20 cm. long, 2–3 mm. wide, flat, or involute toward the apex and base (the blades of the basal shoots commonly involute-setaceous), scabrous on both surfaces, especially the upper, at the base narrower than the sheath, the lower commonly disarticulating at this point; panicles long-exserted, very slender, 5–20 cm. long, the branches scattered, short, erect, the branchlets bearing 1 or 2 subsessile spikelets, the setiform prolongation of the axis mostly equaling or exceeding the spikelet; spikelets 3.5–3.8 mm. long, 1.8–2 mm. wide, elliptic, turgid, abruptly pointed; first glume about half the length of the spikelet, subacute, strongly 5–7-nerved; second glume and sterile lemma scarcely equaling the fruit, strongly 5–7-nerved; fruit 3.1–3.3 mm. long, 1.8–1.9 mm. wide, elliptic, minutely pointed, obscurely transversely rugose.

TYPE LOCALITY: Texas.
DISTRIBUTION: Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 356*; Contr. U. S. Nat. Herb. 15: *f. 7.*

6. **Panicum firmulum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 27. 1910.

Plants light olive-green, rather loosely tufted, ascending or decumbent at base, from creeping knotted rootstocks as much as 5 cm. long; culms 30–40 cm. high, simple or with a few appressed branches, glabrous, the nodes glabrous or strigose; leaf-sheaths overlapping, striate, papillose-pubescent, papillose only, or nearly glabrous, a tuft of stiff hairs 3 mm. long on the sides at the summit; ligule dense, about 1.5 mm. long; blades ascending or spreading, firm,

4–10 cm. long, the lower shorter and more spreading, 4–7 mm. wide, abruptly acuminate, rounded at the base and wider than the sheath, sparsely papillose-ciliate, at least toward the base, scabrous on the upper surface; panicles slender, interrupted, their branches erect, the branchlets bearing 1–3 short-pediceled spikelets, the setiform prolongation of the axis usually about as long as the spikelets, sometimes twice as long; spikelets 3–3.2 mm. long, 1.7–1.8 mm. wide, obovate, subacute, turgid, strongly nerved; first glume clasping, half the length of the spikelet, pointed, 5–7-nerved; second glume and sterile lemma subequal, scarcely covering the fruit, 5–7-nerved, the glume obscurely reticulate toward the summit; fruit 2.7–2.8 mm. long, 1.6–1.7 mm. wide, obovate-elliptic, abruptly acute, very turgid.

TYPE LOCALITY: Elsordo, Zapata County, Texas.
DISTRIBUTION: Southern Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 9*.

7. **Panicum geminatum** Forsk. Fl. Aegypt.-Arab. 18. 1775.

Paspalum appressum Lam. Tab. Encyc. 1: 176. 1791.
Digitaria appressa Pers. Syn. Pl. **1**: 85. 1805.
? *Digitaria affinis* R. & S. Syst. Veg. **2**: 470. 1817.
Panicum beckmanniaeforme Mikan; Trin. Neue Entdeck. **2**: 83. 1821.
Panicum truncatum Trin. Gram. Pan. 130. 1826.
? *Panicum affine* Nees, Agrost. Bras. 113. 1829.
Panicum brizaeforme J. Presl, in Presl, Rel. Haenk. **1**: 302. 1830.
Panicum carnosum Salzm.; Steud. Syn. Gram. 60, as synonym. 1854.
Panicum glomeratum Buckl. Prel. Rep. Geol. & Agr. Surv. Tex. App. 3. 1866. Not *P. glomeratum* Moench, 1794.
Panicum appressum Lam.; Doell, in Mart. Fl. Bras. **2**^{2}: 184. 1877. Not *P. appressum* Forsk. 1775.

Plants glabrous throughout; culms cespitose, usually numerous, 25–80 cm. high, spreading from a more or less decumbent base, scarcely succulent; leaf-sheaths usually overlapping, rather close; ligule ciliate, 1 mm. long; blades 10–20 cm. long, 3–6 mm. wide, rather stiffly spreading or erect, flat, or involute toward the apex, somewhat scabrous on the upper surface; panicles short-exserted or included at the base, 12–30 cm. long; axis angled, smooth except toward the summit; racemes 12–18, erect or narrowly ascending, the lower rarely distant more than their own length, the upper gradually approximate, the lower 2.5–3 cm. long, the upper successively shorter, the axis usually ending in a more or less well-marked, pointed prolongation; spikelets subsessile, 2.2–2.4 mm. long, 1.4 mm. wide, turgid, abruptly and minutely pointed; first glume about one third the length of the spikelet, truncate or obtuse; second glume nearly as long as the fruit (exceeded only by the point of latter), 5-nerved; sterile lemma 5-nerved, abruptly pointed, equaling the fruit and like the second glume very faintly reticulate toward the summit, inclosing a hyaline palea and usually an abortive staminate flower; fruit 2.2 mm. long, 1.2 mm. wide, elliptic, abruptly pointed, strongly transversely rugose.

TYPE LOCALITY: Rosetta, Egypt.
DISTRIBUTION: Florida and Texas, and southward through the West Indies and Mexico to tropical South America; also in the warmer parts of the Old World.
ILLUSTRATIONS: Rep. Mo. Bot. Gard. **10**: *pl. 16*; Field Columb. Mus. Publ. Bot. **3**: 34 (as *P. paspalodes*); Contr. U. S. Nat. Herb. **15**: *f. 11*.
This species has been erroneously referred to *Panicum paspalodes* Pers., of India.

8. **Panicum paludivagum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 32. 1910.

Plants glabrous throughout; culms elongate, from a long, creeping base, rooting at the nodes, rather soft and succulent, as much as 2 meters long, the lower submerged portion loosely branching, the internodes, except the uppermost, somewhat swollen, the nodes constricted and often dark-colored; leaf-sheaths papery and more or less inflated, especially the lower, mostly deciduous from the submerged portion; ligule ciliate, about 1 mm. long; blades 15–40 cm. long, conduplicate at base, flat above, long-acuminate, rather lax, very scabrous on the upper surface, smooth below, the lower much reduced or rudimentary; panicles usually overtopped or equaled by the leaves, 25–35 cm. long; axis angled, smooth; racemes 12–15, erect, the lower distant, 3 cm. long, the upper gradually approximate and shorter, the axis ending in a rudimentary spikelet or sometimes in a short, slender-pointed prolongation; spikelets appressed to the angled rachis, 2.8–3 mm. long, 1.4–1.6 mm. wide, narrowly ovate,

not turgid, subacute; first glume about one fifth the length of the spikelet, nerveless, erose-truncate; second glume half to two thirds the length of the spikelet, faintly 3-nerved; sterile lemma as long as the fruit, very faintly nerved toward the summit, inclosing a palea of equal length and a staminate flower; fruit 2.8–3 mm. long, 1.2–1.3 mm. wide, narrowly ovate, acute, very obscurely rugose, the margins scarcely inrolled.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: Florida, Texas, Mexico, and Central America; also in Uruguay.
ILLUSTRATIONS: Bull. U. S. Dept. Agr. Agrost. **7**: *f. 41* (as *P. paspalodes*); Contr. U. S. Nat. Herb. **15**: *f. 13*.

9. **Panicum barbinode** Trin. Mém. Acad. St.-Pétersb. VI. 3^2: 256. 1834.

? *Panicum muticum* Forsk. Fl. Aegypt.-Arab. 20. 1775.
Panicum purpurascens Raddi, Agrost. Bras. 47. 1823. Not *P. purpurascens* H. B. K. 1815.
Panicum guadaloupense Steud. Syn. Gram. 61. 1854.
Panicum equinum Salzm.; Steud. Syn. Gram. 67. 1854.
Panicum pictiglume Steud. Syn. Gram. 73. 1854.
Panicum paraguayense Steud.; Doell, in Mart. Fl. Bras. 2^2: 189, as synonym. 1877.

Plants perennial, sending out widely creeping stolons; culms decumbent at base, rooting at the lower nodes, the flowering shoots upright, 1–3 m. high, robust, simple, or producing leafy shoots only, glabrous, the nodes densely villous; leaf-sheaths softly or harshly villous to merely papillose or even glabrous toward the summit, densely pubescent at the juncture with the blades; ligule membranaceous, densely ciliate, about 1 mm. long; blades ascending or spreading, 10–30 cm. long, 10–15 mm. wide, rounded at the base, glabrous on both surfaces, the margin scabrous; panicles 12–20 cm. long, about half as wide, the rather distant, subracemose, densely flowered branches ascending or spreading, the main axis and the somewhat flattened branches scabrous on the edges, densely pubescent in the axils, a few stiff hairs on the very short pedicels; spikelets 3 mm. long, 1.3 mm. wide, elliptic; first glume about one fourth the length of the spikelet, 1-nerved, acute; second glume and sterile lemma subequal, both exceeded by the sterile palea; fruit about 2.5 mm. long, 1.1 mm. wide, obtuse, minutely transversely rugose.

TYPE LOCALITY: Bahia, Brazil.
DISTRIBUTION: Florida, Texas, and tropical America; also in the warmer parts of the Old World.
ILLUSTRATIONS: Trin. Ic. *pl. 318*: Vasey, Agr. Grasses U. S. *pl. 6*; ed. 2. *pl. 12*; Contr. U. S. Nat. Herb. **15**: *f. 15*.
This species has been erroneously referred to *Panicum molle* Sw. (see page 214).

10. **Panicum reptans** L. Syst. Nat. ed. 10. 870. 1759.

Panicum grossarium L. Syst. Nat. ed. 10. 871. 1759.
Panicum prostratum Lam. Tab. Encyc. 1: 171. 1791.
Panicum caespitosum Sw. Fl. Ind. Occ. 146. 1797.
Panicum insularum Steud. Syn. Gram. 61. 1854.
Brachiaria prostrata Griseb. Abh. Ges. Wiss. Gött. **7**: 263. 1857.
Panicum aurelianum Hale; Wood, Class Book ed. 1861. 787. 1861.
Panicum prostratum pilosum Eggers, Fl. St. Croix 104. 1879.

Plants spreading, usually prostrate, or with a decumbent base, rooting at the lower nodes; culms slender, usually freely branching, ascending 10–30 cm. above the decumbent or creeping base, glabrous, the nodes usually puberulent; leaf-sheaths loose, glabrous, densely ciliate, shorter than the internodes; ligule a dense ring of hairs 1 mm. long or less; blades lanceolate or ovate-lanceolate, 1.5–6 cm. long, 4–12 mm. wide, cordate, glabrous or puberulent on both surfaces, the white, undulate margin hispid-scabrous, ciliate at base with long, stiff hairs; inflorescence finally long-exserted, 2–6 cm. long, consisting of 3–12 spike-like, ascending or spreading racemes arranged along a main axis; racemes solitary or sometimes somewhat fascicled, the upper approximate and shorter, the lower rather distant and 2–3 cm. long; rachises and pedicels scabrous and usually sparsely pilose with long, weak hairs; spikelets borne on one side of the rachis, irregularly and rather densely clustered, on pubescent pedicels 1 mm. or less in length, elliptic, 1.9–2 mm. long, 0.9–1 mm. wide, acute, glabrous; first glume about one sixth the length of the spikelet, rounded or truncate; second glume and sterile lemma slightly exceeding the fruit, strongly 5- to 7-nerved; fruit 1.7 mm. long, 0.8 mm. wide, elliptic, apiculate.

As a whole this species is very uniform, but the long hairs on the secondary rachises and pedicels are sometimes wanting.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Florida to Texas, the Atlantic slope of Mexico, and the West Indies; also in northern South America and the warm regions of the Eastern Hemisphere.
ILLUSTRATIONS: Trin. Ic. *pl. 184; pl. 185, f. A*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 341*; Contr. U. S. Nat. Herb. **15**: *f. 17*.

11. **Panicum fasciculatum** Sw. Prodr. 22. 1788.

Panicum chartaginense Sw. Prodr. 22. 1788.
Panicum fuscum Sw. Prodr. 23. 1788.
Panicum flavescens Sw. Prodr. 23. 1788.
Panicum fusco-rubens Lam. Tab. Encyc. **1**: 171. 1791.
Panicum fastigiatum Poir. in Lam. Encyc. Suppl. **4**: 277. 1816.
Panicum nigricans Willd.; Spreng. Syst. **1**: 310, as synonym. 1825.
Panicum fuscatum Presl; Nees, Agrost. Bras. 152, as synonym. 1829.
Panicum spithamaeum Willd.; Nees, Agrost. Bras. 152. 1829.
Panicum illinoniense Desv. Opusc. 91. 1831.
Panicum reticulatum Griseb. Abh. Ges. Wiss. Gött. **7**: 264. 1857. Not *P. reticulatum* Torr. 1853.
Panicum fuscum fasciculatum Griseb. Fl. Brit. W. Ind. 547. 1864.
Panicum fasciculatum genuinum Doell, in Mart. Fl. Bras. **2**^{2}: 204. 1877.
Panicum fasciculatum flavescens Doell, in Mart. Fl. Bras. **2**^{2}: 205. 1877.
Panicum fasciculatum fuscum Doell, in Mart. Fl. Bras. **2**^{2}: 205. 1877.
Panicum fasciculatum chartaginense Doell, in Mart. Fl. Bras. **2**^{2}: 205. 1877.

Plants erect or spreading from a decumbent base, the more robust becoming much branched from the lower nodes; culms 30–100 cm. high or more, glabrous or scabrous, or sometimes pubescent below the panicle or hispid below the appressed-pubescent nodes; leaf-sheaths sometimes shorter, sometimes longer than the internodes, glabrous or more or less papillose-hispid, densely ciliate, pubescent at the juncture with the blades; ligule a dense ring of hairs about 1 mm. long; blades flat, 4–30 cm. long, 6–20 mm. wide, glabrous, usually scabrous above, sometimes sparsely hispid on one or both surfaces, the nerves in the larger blades conspicuous, sometimes appearing somewhat plicate; inflorescence short-exserted or included at base until maturity, consisting of a series of spike-like racemes arranged along a scabrous, sometimes pilose, main axis, 5–15 cm. long, the racemes 5–10 cm. long, solitary or fascicled, narrowly ascending or somewhat spreading, spikelet-bearing from the base, or naked below, the short-pediceled spikelets approximate or somewhat crowded, borne singly, or two or three together on short branchlets, along the under side of the axis; spikelets bronze to mahogany-colored, 2.1–2.5 mm. long, in occasional specimens as much as 3 mm. long, obovate, turgid, abruptly short-pointed, glabrous; first glume clasping, about one third the length of the spikelet, subacute, 5–7-nerved; second glume and sterile lemma slightly exceeding the fruit, 9-nerved, faintly to strongly transversely wrinkled between the nerves; fruit 1.9–2.3 mm. long, obovate, obscurely apiculate.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Southern Florida and Texas, and southward through Mexico and the West Indies to tropical South America.
ILLUSTRATIONS: Trin. Ic. *pl. 206*; Field Columb. Mus. Publ. Bot. **3**: 34 (both as *P. fuscum*); Contr. U. S. Nat. Herb. **15**: *f. 19*; *f. 21* (as *P. fasciculatum chartaginense*).

Panicum fasciculatum reticulatum Beal, Grasses N. Am. **2**: 117. 1896. *Panicum reticulatum* Torr. in Marcy, Expl. 299. 1853. *Panicum fuscum reticulatum* Scribn. & Merr.; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 4. 1901. Differing in the smaller, more compact panicles, with ascending or appressed branches, the narrower blades, usually pubescent on both surfaces, and the spikelets 2.6–3 mm. long. Texas to Arizona, and south to southern Mexico. Originally described from the main fork of Red River [Texas].

12. **Panicum molle** Sw. Prodr. 22. 1788.

Plants ascending or spreading from a decumbent base, usually branching; culms 30–70 cm. high, softly pubescent, at least below the pubescent nodes; leaf-sheaths usually shorter than the internodes, loose, softly pubescent between the nerves, sometimes obscurely so, densely ciliate; ligule a dense ring of hairs about 1 mm. long; blades ascending or spreading, 4–15 cm. long, rarely longer, 7–15 mm. wide, rounded at the base, finely and softly pubescent on both surfaces or nearly glabrous on the upper; panicles short-exserted or, especially those of the branches, included at base, 6–15 cm. long, the several to many subracemose branches ascending, rarely widely spreading at maturity, the main axis and those of the branches densely and softly

pubescent and also beset with stiff, spreading hairs about 1 mm. long, the short pedicels of the somewhat crowded spikelets similarly hirsute; spikelets 3.4–3.8 mm. long, 1.5–1.7 mm. wide, obovate, turgid, abruptly pointed, short-attenuate at base, a disinct internode of the rachilla between the first and second glumes; first glume clasping, half as long as the spikelet or more, acute, 5-nerved, the nerves usually anastomosing toward the apex, pilose; second glume and sterile lemma pointed beyond the fruit, 5-nerved, obscurely reticulate between the nerves, pilose, often densely so; fruit 2.6–3 mm. long, 1.5–1.6 mm. wide, elliptic, apiculate.

TYPE LOCALITY: West Indies.
DISTRIBUTION: Cuba; Jamaica; Mexico to Panama; also in northern South America.
ILLUSTRATIONS: Trin. Ic. *pl. 180* (as *P. velutinosum*); Field Columb. Mus. Publ. Bot. **3**: 35 (as *P. chartaginense*); Contr. U. S. Nat. Herb. **15**: *f. 23*.

13. **Panicum adspersum** Trin. Gram. Pan. 146. 1826.

Panicum Thomasianum Steud.; Doell, in Mart. Fl. Bras. **2**²: 188, as synonym. 1877.

Plants light-green, glabrous except as noted, ascending or spreading from a decumbent base, rooting at the lower nodes, commonly rather freely branching; culms 30–100 cm. high, compressed; leaf-sheaths shorter than the internodes, rather loose, densely ciliate at least toward the summit; ligule a ciliate-membranaceous ring scarcely 1 mm. long; blades ascending or spreading, 5–15 cm., rarely as much as 20 cm. long, 8–20 mm. wide, abruptly acuminate, sometimes ciliate at the rounded base, scabrous on the margin; panicles rather short-exserted, 6–15 cm. long, composed of few to many ascending spike-like racemes 3–10 cm. long, the slender axes angled, scabrous, usually pubescent in the axils, bearing approximate, short-pediceled spikelets singly or two or three together on short branchlets along the under side; spikelets 3.2–4 mm. long, 1.5–1.8 mm. wide, fusiform, turgid, abruptly acuminate; first glume clasping, about one third the length of the spikelet, subacute, 5-nerved, glabrous; second glume and sterile lemma exceeding the fruit and pointed beyond it, 5–7-nerved, hispid at least toward the summit, or sometimes hispidulous only, rarely glabrous, sometimes obscurely reticulate; fruit 2.2–3 mm. long, obovate, obtuse.

TYPE LOCALITY: Santo Domingo.
DISTRIBUTION: Florida, Bahamas, and the West Indies.
ILLUSTRATIONS: Trin. Ic. *pl. 169*; Bull. U. S. Dept. Agr. Agrost. **7**: *f. 43* (as *P. grossarium*); Contr. U. S. Nat. Herb. **15**: *f. 24*.

This species has been erroneously referred to *Panicum grossarium* L., but that is a synonym of *P. reptans* (see page 213).

14. **Panicum arizonicum** Scribn. & Merr.; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 2. 1901.

Panicum dissitiflorum Vasey, in S. Wats. Proc. Am. Acad. **24**: 80, hyponym. 1889.
Panicum fuscum majus Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 26. 1889.
Panicum fasciculatum dissitiflorum Vasey; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 2, as synonym. 1901.
Panicum arizonicum tenue Scribn. & Merr.; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 3. 1901.
Panicum arizonicum laeviglume Scribn. & Merr.; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 3. 1901.
Panicum arizonicum majus Scribn. & Merr.; Merrill, Circ. U. S. Dep. Agr. Agrost. **32**: 3. 1901.

Plants erect or ascending, sometimes decumbent at base and rooting at the lower nodes, branching at the base and lower nodes; culms 20–60 cm. high, glabrous except below the panicle, the nodes sometimes slightly pubescent; leaf-sheaths shorter than the internodes or the upper often overlapping, rather loose, glabrous to strongly papillose-hispid; ligule a ring of hairs about 1 mm. long; blades rather thin, ascending or spreading, 5–15 cm. long, 6–12 mm. wide, rounded at base, glabrous on both surfaces, or scabrous to papillose-hispid beneath, the scabrous, thin, cartilaginous margin usually papillose-ciliate at base; panicles usually long-exserted, 7–20 cm. long, the solitary, ascending, slender branches loosely flowered, the spikelets borne on very short appressed branchlets, the pedicels and axes of branchlets, branches, and the entire panicle finely pubescent and also copiously papillose-hirsute; spikelets 3.5–3.8 mm. long, obovate-elliptic, abruptly pointed, attenuate at base as in *P. molle*, densely hirsute to glabrous; first glume clasping, half the length of the spikelet, acute, 5-nerved; second glume and sterile lemma pointed beyond the fruit, 5-nerved, the nerves sometimes anastomosing as in *P. molle;* fruit 2.9–3 mm. long, 1.5–1.6 mm. wide, obovate-elliptic, apiculate.

TYPE LOCALITY: Camp Lowell, Santa Cruz Valley, Arizona.
DISTRIBUTION: Western Texas to southern California, and Sonora to Oaxaca.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 26*.

15. **Panicum texanum** Buckl. Prel. Rep. Geol. & Agr. Surv. Tex. App. 3. 1866.

Plants erect or ascending, often decumbent and rooting at the lower nodes, branching from the base and commonly from the lower and middle nodes; culms stout, 50–150 cm. high, or in robust specimens as much as 3 meters high, softly pubescent at least below the nodes and below the panicles; leaf-sheaths softly pubescent, often papillose, densely ciliate, the lower shorter than the internodes, the upper usually overlapping; ligule about 1 mm. long; blades ascending or spreading, 8–20 cm. long, 7–15 mm. wide, rounded at the base, softly pubescent on both surfaces, often finely papillose; panicles finally exserted, 8–20 cm. long, 1–3 cm. wide, the main axis much exceeding the erect branches, the axes densely clothed with short pubescence having long, stiff hairs intermixed, the short-pediceled spikelets somewhat crowded; spikelets 5–6 mm. long, about 2 mm. wide, fusiform, pointed, short-attenuate at base, pilose; first glume clasping, more than half the length of the spikelet, acute, 3–5-nerved; second glume and sterile lemma exceeding the fruit, 5-nerved, often obscurely reticulate; fruit 3.7–3.8 mm. long, about 2 mm. wide, elliptic, apiculate.

TYPE LOCALITY: Austin, Texas.
DISTRIBUTION: Texas and northern Mexico.
ILLUSTRATIONS: Vasey, Agr. Grasses U. S. *pl. 7*; ed. 2. *pl. 10*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 44*; **14**: *f. 67*; **15**: *f. 8*; Contr. U. S. Nat. Herb. **15**: *f. 28*.

16. **Panicum Vaseyanum** Scribn.; Beal, Grasses N. Am. **2**: 140. 1896.

Plants spreading, branching at base and at the lower and middle nodes, glabrous throughout; culms 50–70 cm. long, somewhat compressed; leaf-sheaths shorter than the elongate internodes; ligule 1–2 mm. long; blades 5–20 cm. long, 3–7 mm. wide, linear, scarcely narrowed at the folded or enveloping base; panicles terminal and from the axils of the upper leaves of the main culms and large branches, narrow, 4–7 cm. long, less than 1 cm. wide, partially included, equaled or exceeded by the erect uppermost blade; spikelets short-pediceled, narrowly ovate, 2.5 mm. long, 1.1–1.2 mm. wide, subacute; first glume about one fifth the length of the spikelet, truncate or obtuse; second glume slightly shorter than the sterile lemma, both 7-nerved, the palea of the sterile floret obsolete; fruit 2.1 mm. long, 1 mm. wide, elliptic, apiculate.

TYPE LOCALITY: Base of Sierra Madre, Chihuahua.
DISTRIBUTION: Chihuahua to Jalisco.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 30*.

17. **Panicum dichotomiflorum** Michx. Fl. Bor. Am. **1**: 48. 1803.

Panicum miliaceum Walt. Fl. Car. 72. 1788. Not *P. miliaceum* L. 1753.
Panicum geniculatum Muhl. Cat. 9. 1813; Descr. Gram. 123. 1817.
Panicum multiflorum Poir. in Lam. Encyc. Suppl. **4**: 282. 1816.
Panicum brachiatum Bosc; Spreng. Syst. 1: 321. 1825. Not *P. brachiatum* Poir. 1816.
Panicum Elliottii Trin.; Nees, Agrost. Bras. 170, as synonym. 1829.
Panicum retrofractum Delile; Desv. Opusc. 96. 1831.
Panicum proliferum pilosum Griseb. Cat. Pl. Cub. 232. 1866.
Panicum proliferum geniculatum Wood, Bot. & Fl. ed. 1871. 392. 1871.
Panicum amplectans Chapm. Bot. Gaz. **3**: 20. 1878.
Panicum Francavillanum Fourn. Mex. Pl. Gram. 25. 1886.*

Plants usually freely branching, ascending or spreading from a geniculate base, or sometimes erect, usually smooth throughout, or in tropical forms more or less pubescent; culms somewhat compressed, often thick and succulent, drying furrowed, usually 50–100 cm. long, in robust specimens as much as 2 meters long, the nodes smooth, at least the lower swollen; leaf-sheaths often compressed, usually longer than the internodes, ciliate on the margin toward the summit; ligule 1–2 mm. long; blades flat or in small specimens sometimes folded, glabrous, or sparsely pilose above, 10–50 cm. long, 3–20 mm. wide, at base about as wide as the sheath, the white midnerve usually prominent; panicles terminal and axillary, included at base or tardily short-exserted, many-flowered, 10–40 cm. long or more, the main branches ascending, or finally

* Hitherto, in this volume, the date 1881 has been assigned to Fourn. Mex. Pl. Gram.; the present author's reasons for preferring 1886 have been explained in Contr. U. S. Nat. Herb. **15**: 49 (footnote). 1910. [The question is more fully discussed by Griffiths, who accepts 1881, in Contr. U. S. Nat. Herb. **14**: 350, 351 (footnote). 1912.]

spreading or even reflexed, the short branchlets appressed, bearing short-pediceled, often rather crowded spikelets, the axes angled and scabrous; spikelets narrowly oblong-ovate, 2–3.2 mm., usually about 2.5 mm. long, about 0.9 mm. wide, acute, often greenish-purple; first glume one fifth to one fourth the length of the spikelet, truncate or broadly triangular; second glume and sterile lemma more or less pointed beyond the fruit, rather faintly 7-nerved, the palea of the sterile floret present or wanting; fruit 1.8–2 mm. long, about 0.8 mm. wide, elliptic.

TYPE LOCALITY: Eastern United States.
DISTRIBUTION: Maine to Florida, Nebraska, and New Mexico; California; Panama; Bermuda, Bahamas, and the West Indies.
ILLUSTRATIONS: Vasey, Agr. Grasses U. S. *pl. 8*; ed. 2. *pl. 11*; Bull. Tenn. Exp. Sta. **7**: *pl. 9, f. 36*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 51*; Britt. & Brown, Ill. Fl. *f. 273* (all as *P. proliferum*); ed. 2. *f. 314*; Contr. U. S. Nat. Herb. **15**: *f. 31*.
This species has been erroneously referred to *Panicum proliferum* Lam., of the Old World.

18. **Panicum bartowense** Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **35**: 3. 1901.

Plants simple or sparingly branching, as much as 2 meters high, erect; culms glabrous, the larger as much as 7 mm. thick; leaf-sheaths mostly longer than the internodes, papillose-hispid or papillose only; ligule 2–3 mm. long, the cilia more or less segregated in tufts; blades 15–40 cm. long, 5–13 mm.wide, glabrous or more or less pilose above, rarely sparsely hispid beneath, rather prominently papillose on the margin near the round but scarcely cordate base; panicles large and finally loosely spreading, 15–60 cm. long, the branches at first ascending, finally spreading, the short branchlets and short-pediceled spikelets appressed as in *P. dichotomiflorum;* spikelets 2.2–2.7 mm. long, the glumes and fruit as in *P. dichotomiflorum*.

TYPE LOCALITY: Bartow, Florida.
DISTRIBUTION: Florida, Bahamas, Cuba, and Jamaica.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 33*.

19. **Panicum aquaticum** Poir. in Lam. Encyc. Suppl. **4**: 281. 1816.

Panicum chloroticum sylvestre Nees; Trin. Gram. Pan. 236. 1826.
Panicum hygrophilum Salzm.; Steud. Syn. Gram. 71. 1854.
Panicum proliferum strictum Griseb. Cat. Pl. Cub. 232. 1866.

Plants perennial, mostly aquatic, glabrous except as noted; culms usually decumbent at base, rooting at the nodes, erect branches often arising therefrom, the flowering culms erect, simple or sparingly branching, averaging lower and more slender than in *P. dichotomiflorum;* leaf-sheaths usually overlapping, rarely pilose at the juncture with the blade; ligule a ring of hairs about 1 mm. long; blades commonly elongate, as much as 25 cm. long, but sometimes 5–10 cm. long and abruptly pointed, 5–10 mm. wide, linear, acute, occasionally sparsely pilose on the upper surface toward the base; panicles terminal and axillary, short-exserted or included at base, averaging smaller than those of *P. dichotomiflorum*, rarely as much as 20 cm. long, less freely branching and fewer-flowered, the branchlets and pedicels smooth or nearly so on the angles; spikelets 3–3.4 mm. long, 1 mm. wide, more gradually pointed than those of *P. dichotomiflorum*, the fruit slightly larger and more pointed than in that species.

TYPE LOCALITY: Porto Rico.
DISTRIBUTION: Cuba, Porto Rico, and Guadeloupe; Colima; Guatemala; also in tropical South America.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 28*.

20. **Panicum sucosum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 475. 1915.

Plants perennial, glabrous throughout except as noted; culms few to several in a tuft, 1–1.5 meters long, decumbent at base and rooting at the lower nodes, succulent; leaf-sheaths rather loose, about as long as the internodes; ligule a densely ciliate membrane about 1 mm. long; blades flat or somewhat involute in drying, 15–30 cm. long, 5–9 mm. wide, linear, acuminate, scaberulous on both surfaces, sparsely pilose above toward the base; panicles 15–30 cm. long, about half as wide, the axes and branches somewhat scabrous, the branches solitary or in pairs, rather stiffly spreading, or finally horizontal, as much as 15 cm. long, naked at base for 1–2 cm., the internodes of the rachis mostly 3–5 cm. long, the branchlets appressed or as-

cending, mostly from the lower side; spikelets short-pediceled, somewhat appressed to the rachis, 3.3–3.7 mm. long, about 1 mm. wide, lanceolate, acuminate, glabrous; first glume one fourth to nearly one third the length of the spikelet, broadly triangular, usually subacute, 3-nerved; second glume and sterile lemma subequal, exceeding the fruit and pointed beyond it, 7–9-nerved; fruit about 2.5 mm. long, 0.7 mm. wide, rather abruptly acuminate.

TYPE LOCALITY: Near Guadalajara, Jalisco.
DISTRIBUTION: Southern Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 30.*

21. **Panicum elephantipes** Nees, Agrost. Bras. 165. 1829.

Panicum fistulosum Hochst.; Steud. Syn. Gram. 71. 1854.

Perennial; culms ascending from a decumbent, often widely creeping base, rooting at the nodes, succulent, as much as 2 cm. thick, usually 1–2 meters high, glabrous, the nodes glabrous, usually conspicuously dark-colored; leaf-sheaths glabrous, longer than the internodes, loose, the lower often tessellate by cross partitions between the nerves; ligule about 3 mm. long; blades 15–50 cm. long, 7–20 mm. wide, glabrous beneath, pilose above, at least near the base; panicles large and open, as much as 40 cm. long, the short branchlets appressed along the ascending branches; spikelets 4–5 mm. long, lanceolate, acuminate; first glume one fifth to one fourth the length of the spikelet, subacute or obtuse, rarely pointed and one third the length of the spikelet; second glume and sterile lemma subequal, 7–9-nerved, the palea of the sterile floret wanting; fruit 3–4 mm. long, about 0.8 mm. wide, lanceolate, acuminate, the margins of the lemma above the middle thin and not inrolled.

TYPE LOCALITY: Pará, Brazil.
DISTRIBUTION: West Indies; Guatemala; also in tropical South America.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 35*.

22. **Panicum flexile** (Gatt.) Scribn.; Kearney, Bull. Torrey Club **20**: 476. 1893.

Panicum capillare flexile Gatt. Tenn. Fl. 94. 1887.
Panicum minus Nash, Bull. Torrey Club **22**: 421, excluding description. 1895.
Chasea flexilis Nieuwl. Am. Midl. Nat. **2**: 65. 1911.

Plants erect, much branched from the base, 20–70 cm. high; culms slender, glabrous, or somewhat hispid below, the nodes pubescent; leaf-sheaths papillose-hispid, the hairs shorter than in *P. capillare;* blades erect but not stiff, glabrous or sparsely hispid, as much as 30 cm. long, 2–6 mm. wide, rarely narrower; panicles rather few-flowered, oblong, narrow, 10–20 cm., rarely 30 cm. long, about one third as wide, the branches at first narrowly ascending, somewhat spreading at maturity, the peduncle of the panicle not brittle and readily breaking as in *P. capillare;* spikelets long-pediceled, 3.1–3.5 mm. long, 0.9–1 mm. wide, lanceolate, acuminate; first glume about one third the length of the spikelet; second glume slightly longer than the sterile lemma, both 7–9-nerved, much exceeding the fruit, the palea of the sterile floret wanting; fruit 2 mm. long, 0.9 mm. wide, elliptic.

TYPE LOCALITY: Nashville, Tennessee.
DISTRIBUTION: Ontario to South Dakota, and south to Florida and Texas.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 10, f. 40*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 346*; Contr. U. S. Nat. Herb. **15**: *f. 36*; Britt. & Brown, Ill. Fl. *f. 275*; ed. 2. *f. 319*.

23. **Panicum Gattingeri** Nash, in Small, Fl. SE. U. S. 92, 1327. 1903.

Panicum capillare campestre Gatt. Tenn. Fl. 94. 1887. Not *P. campestre* Nees, 1826.
Panicum capillare geniculatum Scribn.; Kearney, Bull. Torrey Club **20**: 477. 1893. Not *P. geniculatum* Lam. 1798.
Panicum capillare Gattingeri Nash, in Britt. & Brown, Ill. Fl. **1**: 123. 1896.

Plants at first erect, but soon decumbent-spreading and rooting at the lower nodes, freely branching from the lower and middle nodes; culms papillose-hispid, in robust specimens as much as 1 meter in length; leaf-sheaths hispid like the culms; blades 10–20 cm. long, 6–10 mm. wide, narrow to a rounded base, more or less hispid on both surfaces or nearly glabrous; panicles numerous, terminating the culms and main branches and axillary at most of the nodes, short-exserted or, especially the axillary, included at base, oval or elliptic in outline, the terminal 10–15 cm. long, two thirds as wide, the lateral smaller, rather densely flowered, the branches

ascending or tardily spreading; spikelets shorter-pediceled than in *P. capillare* and more turgid, 2 mm. long, 0.9–1 mm. wide, elliptic; first glume about two fifths as long as the spikelet, acute or blunt; second glume and sterile lemma equal, 5-nerved, but slightly exceeding the fruit, the palea of the sterile floret wanting; fruit 1.6 mm. long, 0.8 mm. wide, elliptic.

TYPE LOCALITY: Tennessee.
DISTRIBUTION: Pennsylvania to Minnesota, and south to Tennessee.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 10, f. 38*; Contr. U. S. Nat. Herb. **15**: *f. 38*; Britt. & Brown, Ill. Fl. ed. 2. *f. 317*.

24. **Panicum philadelphicum** Bernh.; Trin. Gram. Pan. 216. 1826.

Panicum capillare sylvaticum Torr. Fl. U. S. 149. 1824. Not *P. sylvaticum* Lam. 1798.
Panicum porphyrium Trin.; Nees, Agrost. Bras. 198. 1829.
Panicum Torreyi Fourn.; Hemsl. Biol. Centr. Am. Bot. **3**: 497. 1885.
Panicum capillare minimum Engelm.; Gatt. Tenn. Fl. 94. 1887.
Panicum minimum Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 4. 1900.
Panicum soboliferum Tuckerm.; Scribn. & Merr. Rhodora **3**: 106, as synonym. 1901.

Plants light yellowish-green, in small tufts, freely branching, erect or rarely decumbent at base, 15–50 cm. high, depauperate northern specimens sometimes forming small mats; culms slender, papillose-hispid to nearly glabrous, more or less zigzag at base, the lower internodes much shortened; leaf-sheaths mostly longer than the internodes, papillose-hispid; blades erect or ascending, 4–15 cm. long, 2–6 mm. wide, rather sparsely hirsute, rarely nearly glabrous; panicles exserted, diffuse, ovoid, 10–20 cm. long, forming one third the entire height of the plant or more, few-flowered, the capillary, scabrous branchlets solitary, bearing rather short-pediceled spikelets, usually in twos, at the ends; spikelets 1.7–2 mm. long, 0.7 mm. wide, elliptic; first glume about two fifths the length of the spikelet, 5-nerved, acute; second glume and sterile lemma equal, only slightly exceeding the fruit, the palea of the sterile floret wanting; fruit 1.5 mm. long, 0.6 mm. wide, elliptic.

TYPE LOCALITY: Philadelphia.
DISTRIBUTION: Maine to Wisconsin, and south to Georgia and Oklahoma.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 10, f. 39*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 349* (as *P. minus*); Contr. U. S. Nat. Herb. **15**: *f. 40*; Britt. & Brown, Ill. Fl. *f. 277* (as *P. minus*); ed. 2. *f. 318*.

25. **Panicum capillare** L. Sp. Pl. 58. 1753.

Milium capillare Moench, Meth. 203. 1794.
Panicum Bobarti Lam. Encyc. **4**: 748. 1797.
Panicum capillare agreste Gatt. Tenn. Fl. 94. 1887.
Panicum capillare vulgare Scribn. Bull. Tenn. Exp. Sta. **7**: 44. 1894.
Chasea capillaris Nieuwl. Am. Midl. Nat. **2**: 64. 1911.

Plants erect or ascending, simple or sparingly branched at the base or sometimes above, 20–80 cm. high; culms papillose-hispid to nearly glabrous, the pubescence dense at the nodes; leaf-sheaths usually longer than the internodes, densely papillose-hispid; blades 10–25 cm. long, 5–15 mm. wide, scarcely narrowed toward the rounded base, hispid on both surfaces, the midrib prominent; panicles densely flowered, large and very diffuse, often half the length of the entire plant, included at the base until maturity, the solitary or fascicled branches at first ascending, at maturity divaricately spreading, the whole panicle breaking away and rolling before the wind, the main axis and branches sparsely pilose, the numerous capillary, scabrous branchlets bearing long-pediceled spikelets toward their ends; spikelets 2–2.5 mm. long, 0.8–0.9 mm. wide, elliptic; first glume about half the length of the spikelet, acute, 5–7-nerved; second glume and sterile lemma equal, more or less acuminate beyond the fruit, the palea of the sterile floret wanting; fruit about 1.5 mm. long, 0.7–0.8 mm. wide, elliptic.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Maine to Montana, and south to Florida and Texas; introduced in Bermuda.
ILLUSTRATIONS: Vasey, Agr. Grasses U. S. *pl. 15*; Bull. Tenn. Exp. Sta. **7**: *pl. 10, f. 37*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 350*; Ann. Rep. N. J. Mus. **1910**: *pl. 9, f. 3*; Contr. U. S. Nat. Herb. **15**: *f. 42*; Francis, Book Grasses 62, 63; Britt. & Brown, Ill. Fl. *f. 274*; ed. 2. *f. 315*.

Panicum capillare brevifolium Vasey; Rydb. & Shear, Bull. U. S. Dep. Agr. Agrost. **5**: 21. 1897. *Panicum barbipulvinatum* Nash, in Rydb. Mem. N. Y. Bot. Gard. **1**: 21. 1900. *Milium barbipulvinatum* Lunell, Am. Midl. Nat. **4**: 212. 1915. Differing in being on the average lower, in having shorter, less pubescent blades crowded toward the base of the plant, shorter, exserted panicles with divaricate branches, and larger spikelets, usually about 3 mm. long. The plants are often depauperate and tufted and the blades sometimes white-margined. Wisconsin to British Columbia, south to southern California and Texas. Originally described from Yellowstone Park.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 44*.

26. **Panicum hirticaule** J. Presl, in Presl, Rel. Haenk. 1: 308. 1830.

Panicum flabellatum Fourn. Bull. Soc. Bot. Fr. **27**: 293. 1881. Not *P. flabellatum* Steud. 1854.
Panicum polygamum hirticaule Fourn. Mex. Pl. Gram. 28. 1886.

Plants erect, simple or nearly so, or sometimes branching and decumbent at base, 15–70 cm. high; culms papillose-hispid to glabrous, the nodes spreading-hispid; leaf-sheaths papillose-hispid, but sometimes sparsely so; blades 5–15 cm. long, 4–13 mm. wide, often cordate at base, sparsely hispid or nearly glabrous, ciliate toward the base; panicles exserted, 5–15 cm. long, scarcely one third the entire height of the plant, rather many-flowered, the branches ascending, the lower usually narrowly so, scabrous but not pilose, bearing rather short and appressed-pediceled spikelets along half to two thirds their length, the glabrous pulvini inconspicuous; spikelets 2.7–3.3 mm. long, 1–1.1 mm. wide (smaller in occasional specimens), lanceolate-fusiform, acuminate, typically reddish-brown; first glume half to three fourths the length of the spikelet, acuminate, the midnerve scabrous toward the apex; second glume slightly longer than the sterile lemma, both much exceeding the fruit, strongly many-nerved, the midnerves scabrous toward the summit, the palea of the sterile floret small, nerveless; fruit 2 mm. long, 1 mm. wide, elliptic, a scar sometimes showing on either side at base.

TYPE LOCALITY: Acapulco, Guerrero.
DISTRIBUTION: Texas to southern California, and south through Mexico to northern South America; Haïti.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 351*; Rep. Mo. Bot. Gard. **10**: *pl. 19*; Contr. U. S. Nat. Herb. **15**: *f. 46*.

27. **Panicum pampinosum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 66. 1910.

Plants freely branching from the base; culms ascending from a decumbent base, branching at the lower and middle nodes, compressed, glabrous, or sparsely pilose below the panicle, the nodes pubescent; leaf-sheaths loose, papillose-hispid, ciliate; ligule of very stiff hairs 2–3 mm. long; blades 5–12 cm. long, 5–10 mm. wide, flat, scarcely narrowed at the rounded or subcordate base, sparsely pilose above, sparsely hispid beneath, the margin pilose and more or less undulate; panicles long-exserted, 6–15 cm. long, half to two thirds as wide, the branches solitary, the lower as much as 5–8 cm. long, often bearing a branchlet at base, stiffly ascending, bearing several, mostly short, appressed branchlets with rather crowded, short-pediceled spikelets; spikelets about 4 mm. long, 1.4 mm. wide, very turgid, pointed; first glume more than three fourths the length of the spikelet, pointed; second glume and sterile lemma subequal, exceeding the fruit and pointed beyond it, the sterile palea short; fruit 2.2 mm. long. 1.3 mm. wide, oval, an indistinct scar at the base.

TYPE LOCALITY: Wilmot, Arizona.
DISTRIBUTION: New Mexico and Arizona to Guanajuato.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 48*.

28. **Panicum decolorans** H. B. K. Nov. Gen. & Sp. 1: 100. 1815.

Plants tinged with purple, branching from the base; culms ascending or erect, usually from a geniculate base, simple or bearing simple, usually sterile branches from the lower one or two nodes, strongly striate or almost grooved, glabrous to sparsely papillose-hispidulous, the nodes appressed-pubescent or glabrous; leaf-sheaths short, but sometimes overlapping on the shortened lower internodes, glabrous to sparsely papillose-hispid, ciliate; ligule membranaceous-fimbriate, hardly 1 mm. long; blades 8–15 cm. long, 7–10 mm. wide, flat, glabrous on both surfaces or with a few scattered papillae, these with or without short, stiff hairs; panicles finally exserted, 10–18 cm. long, usually not more than one third, but sometimes as much as two thirds as wide, the rather long branches usually narrowly ascending, the short-pediceled spikelets somewhat crowded on approximate, short, appressed branchlets; spikelets 4.5–5.2 mm. long, 1.6 mm. wide, pointed; first glume less than half the length of the spikelet, acute; second glume and sterile lemma subequal, exceeding the fruit and pointed beyond it; fruit 2.8–3.2 mm. long, 1.5 mm. wide.

TYPE LOCALITY: Querétaro, Querétaro.
DISTRIBUTION: Central Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 370*.

29. **Panicum stramineum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 67. 1910.

Plants ascending or widely spreading, sparingly branching at the base and lower nodes, or simple, 20–50 cm. high; culms glabrous, the nodes appressed-villous; leaf-sheaths glabrous, sparsely papillose or papillose-hispid; blades erect or ascending, 10–30 cm. long, 4–15 mm. wide, rounded or somewhat cordate at base, glabrous or sometimes sparsely papillose-pilose, scabrous on the margin and sometimes on the upper surface, sometimes ciliate at base; panicles finally exserted, one fourth to one third the entire height of the plant, ovoid in outline, rather many-flowered, the pedicels scarcely as appressed as in *P. hirticaule;* spikelets 3.2–3.7 mm. long, 1.5 mm. wide, elliptic, abruptly acuminate, turgid, pale-stramineous; first glume one third the length of the spikelet, blunt or subacute, the nerves usually anastomosing; second glume and sterile lemma equal, or the glume slightly shorter, not much exceeding the fruit, the palea of the sterile floret as long as the fruit, 2-nerved; fruit 2.2 mm. long, 1.3 mm. wide, obovate-elliptic, turgid, a rather prominent scar on either side at base.

TYPE LOCALITY: Guaymas, Sonora.
DISTRIBUTION: Arizona to Guerrero.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 50.*

30. **Panicum sonorum** Beal, Grasses N. Am. **2**: 130. 1896.

Panicum capillare miliaceum Vasey; Vasey & Rose, Contr. U. S. Nat. Herb. **1**: 28. 1890. Not *P. miliaceum* L. 1753.

Plants robust, erect or spreading, 60 cm. to more than 1 meter high; culms glabrous or sparsely papillose-hispid, the nodes pubescent; leaf-sheaths papillose-hispid or nearly glabrous; blades 15–40 cm. long, 15–30 mm. wide, cordate-clasping at base, rather prominently nerved, glabrous or sparsely papillose-hispid; panicles large and more or less drooping, 20–30 cm. long, densely flowered, the numerous branches narrowly ascending; spikelets 3–3.3 mm. long, 1.1 mm. wide, lanceolate, strongly nerved, brownish; first glume half to two thirds the length of the spikelet, acuminate; second glume slightly exceeding the sterile lemma, the palea of the sterile floret wanting; fruit 2.1 mm. long, 1 mm. wide, oblong-obovate, subacute. This species may be a cultivated form of *Panicum hirticaule.*

TYPE LOCALITY: Lerdo, Sonora.
DISTRIBUTION: Northwestern Mexico; Chiapas.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 52.*

31. **Panicum parcum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 68. 1910.

Plants sparingly branching from the middle or upper nodes; culms 30–50 cm. high, slender, erect or somewhat geniculate at base, glabrous; leaf-sheaths rather sparingly papillose-hispid, glabrate toward the base; ligule 1–2 mm. long; blades ascending, rather thin, linear, elongate, 10–30 cm. long, 2–6 mm. wide, slightly narrowed to the base, acuminate, sparsely pilose on both surfaces or glabrate, more or less ciliate; panicles short-exserted, the terminal 10–20 cm. long, half to two thirds as wide (the axillary smaller), few-flowered, the few, slender, but not capillary, flexuous branches solitary, remote, ascending, bearing ascending or appressed branchlets with scattered, rather long-pediceled spikelets; spikelets about 6 mm. long, 1.8 mm. wide, turgid, acuminate-pointed; first glume about half the length of the spikelet, pointed; second glume longer than the sterile lemma, both exceeding the fruit and pointed beyond it, the sterile palea about half as long as its lemma; fruit 3.3 mm. long, 1.4 mm. wide.

TYPE LOCALITY: Lodiego, Sinaloa.
DISTRIBUTION: Sinaloa to Guerrero.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 53.*

32. **Panicum miliaceum** L. Sp. Pl. 58. 1753.

Milium Panicum Mill. Gard. Dict. ed. 8. Milium no. 1. 1768.
Milium esculentum Moench, Meth. 203. 1794.
Panicum Milium Pers. Syn. Pl. **1**: 83. 1805.
Panicum asperrimum Fisch.; Jacq. f. Eclog. Gram. 46. 1820.

Plants erect or decumbent at base, usually branching from the basal nodes, 20 cm. to as much as 1 meter high; culms stout, hispid below the pubescent nodes or glabrous; leaf-sheaths

loose, sometimes longer than the internodes, papillose-hispid; blades drying yellowish-green, more or less pilose on both surfaces, or glabrate, as much as 30 cm. long and 2 cm. wide, rounded at base, gradually narrowed to the apex; panicles usually more or less included at base, 10–30 cm. long, more or less nodding, usually rather compact, the numerous branches narrowly ascending, very scabrous, spikelet-bearing toward the summit; spikelets 4.5–5 mm. long, ovate, acuminate, strongly many-nerved; first glume half the length of the spikelet or more, acuminate; second glume and sterile lemma subequal, a small palea in the sterile floret; fruit 3 mm. long, 2 mm. wide, elliptic, stramineous to reddish-brown.

TYPE LOCALITY: India.
DISTRIBUTION: Introduced at various points in the United States; widely distributed in the Old World.
ILLUSTRATIONS: Jacq. f. Eclog. Gram. *pl. 31;* Trin. Ic. *pl. 221*; Vasey, Agr. Grasses U. S. ed. 2. *pl. 13*; Bull. U. S. Dep. Agr. Agrost. **20**: *f. 23*; Contr. U. S. Nat. Herb. **15**: *f. 54*; Britt. & Brown, Ill. Fl. *f. 272*; ed. 2. *f. 320*; Hitchc. Text-book Grasses *f. 21*.

33. **Panicum cayennense** Lam. Tab. Encyc. **1**: 173. 1791.

Panicum floribundum Rich.; Lam. Encyc. **4**: 742, as synonym. 1797.
Panicum pedunculare Willd.; Steud. Syn. Gram. 77. 1854.
Panicum cayennese patulum Doell, in Mart. Fl. Bras. **2**²: 220. 1877.

Plants erect, or, when much-branched at the base, spreading; culms 20–50 cm. high, often zigzag, glabrous or more or less papillose-pilose below the pilose nodes; leaf-sheaths papillose-pilose, ciliate; blades linear, 10–20 cm. long, 4–10 mm. wide, rather stiffly ascending, rounded at the scarcely narrowed base, rather sparsely papillose-pilose on both surfaces or sometimes nearly glabrous; panicles terminal and axillary from the upper 2 or 3 sheaths, rarely fascicled, approximate and forming an elongate inflorescence from two thirds to almost the entire height of the plant, the individual panicles included at the base, 8–20 cm. long, half to two thirds as wide, the slender, scabrous branches and branchlets and the long, flexuous pedicels divaricate; spikelets 2.2–2.3 mm. long, 1.2 mm. wide, obovoid, turgid; first glume about half the length of the spikelet, acute; second glume and sterile lemma equal, slightly exceeding the fruit, abruptly short-pointed, strongly 5–7-nerved, the sterile palea about half the length of its lemma; fruit 1.7 mm. long, 1.1 mm. wide, oval, turgid.

TYPE LOCALITY: Cayenne.
DISTRIBUTION: Cuba; Costa Rica to Brazil.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 56*.

34. **Panicum capillarioides** Vasey; Coult. Contr. U. S. Nat. Herb. **1**: 54. 1890.

Plants in tufts of few to several culms from a knotted crown, erect or ascending, 30–55 cm. high; culms stiff, simple or sparingly branching, appressed-pubescent or sometimes glabrate, the nodes densely ascending-pubescent; leaf-sheaths mostly equaling or exceeding the rather short internodes, papillose-pubescent; ligule about 1.5 mm. long; blades rather stiff, ascending, 10–30 cm. long, 2–10 mm. wide, scarcely narrowed to the rounded base, flat or drying somewhat involute, harshly papillose-pubescent on both surfaces, usually sparsely so beneath; panicles short-exserted, usually nearly equaled by the upper blades, diffuse, few-flowered, 10–20 cm. long, as wide or wider, the capillary branches stiffly spreading at maturity, bearing rather short-pediceled spikelets toward the end, the axis and branches scabrous, the rather conspicuous pulvini pubescent; spikelets 5–6 mm. long, 1–1.2 mm. wide, lanceolate, long-acuminate; first glume one third to half the length of the spikelet, acute, 7-nerved; second glume and sterile lemma subequal, many-nerved, at least three times as long as the fruit, usually more or less inflated above it; fruit 1.6–1.8 mm. long, 0.8–0.9 mm. wide, elliptic.

TYPE LOCALITY: Point Isabel, Texas.
DISTRIBUTION: Southern Texas and adjacent Mexico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 348*; Contr. U. S. Nat. Herb. **15**: *f. 57*.

35. **Panicum diffusum** Sw. Prodr. 23. 1788.

Panicum caespititium Lam. Tab. Encyc. **1**: 173. 1791.

Plants in small, dense tufts, spreading, or ascending from a decumbent base, simple or sparingly branching, rarely repeatedly branching, 25–50 cm. high; culms slender, wiry, glabrous,

the nodes appressed-pubescent; leaf-sheaths shorter than the internodes, striate, glabrous, or pubescent along the margin toward the summit or the lower sparsely so throughout; ligule about 1 mm. long; blades erect from the sheath but often spreading at the ends, 5–20 cm. long, 1–3 mm. wide, flat or drying subinvolute, sparsely pilose on the upper surface, glabrous or sparingly pubescent beneath; panicles exserted, 5–10 cm. long, nearly as wide, the few capillary branches at first ascending, stiffly spreading at maturity, bearing a few short-pediceled spikelets toward the ends; spikelets 2.1–2.5 mm. long, about 1 mm. wide; first glume about half the length of the spikelet, acute, 5-nerved; second glume and sterile lemma 7–9-nerved; fruit 1.5–1.6 mm. long, 0.9 mm. wide, elliptic.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Bahamas and the West Indies.
ILLUSTRATIONS: Trin. Ic. *pl. 263*; Contr. U. S. Nat. Herb. **15**: *f. 59*.

Panicum Bergii Arech. (Anal. Mus. Nac. Montevid. 1: 147. 1894), a South American species with numerous leaves clustered at the base, hispid sheaths, involute blades, and very diffuse panicles, a third or more the entire height of the plant, with verticillate lower branches, conspicuously pilose in the axils, and short-pointed spikelets 2.2–2.6 mm. long, has been collected on ballast at Mobile, Alabama, and at Galveston, Texas.

36. **Panicum filipes** Scribn.; A. Heller, Bot. Expl. Texas 13. 1895.

Plants pale-green, in small dense tufts, erect or ascending, 30–80 cm. high; culms simple or sparingly branching, stiff, glabrous except the appressed-pubescent nodes; leaf-sheaths shorter than the internodes, glabrous or sparsely appressed-hispid toward the summit; ligule about 1.5 mm. long; blades thin, ascending or laxly spreading, 10–25 cm. long, 3–8 mm. wide, flat, glaucous and glabrous on the upper surface, glabrous beneath or very sparsely papillose-hirsute; panicles exserted, usually equaled or exceeded by the uppermost blades, 7–25 cm. long, about as wide, the distant branches spreading, the branchlets rather more numerous and the spikelets usually longer-pediceled than in *P. diffusum;* spikelets 2–2.6 mm. long, about 1 mm. wide; first glume about two thirds the length of the spikelet, acuminate, 3–5-nerved, second glume and sterile lemma 5–7-nerved; fruit 1.5–1.7 mm. long, about 0.8 mm. wide, elliptic.

TYPE LOCALITY: Corpus Christi, Texas.
DISTRIBUTION: Southern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 50*; Contr. U. S. Nat. Herb. **15**: *f. 60*.

37. **Panicum Hallii** Vasey, Bull. Torrey Club 11: 61. 1884.

Plants rather glaucous-green, in small tufts, erect, 15–60 cm. high; culms simple or sparingly branching from the lower nodes, glabrous except the appressed-pubescent nodes; leaves commonly more or less crowded toward the base, the blades becoming curled or twisted, the lower sheaths overlapping on the short internodes; leaf-sheaths sparsely papillose-hispid to glabrous; ligule about 1.5 mm. long; blades erect or nearly so, 4–15 cm. long, 2–6 mm. wide, flat, usually sparsely papillose-ciliate toward the base, otherwise glabrous or with a few long, delicate hairs on the upper surface or sparingly papillose-hispid beneath, often with a thin, cartilaginous, white margin, curling, with age, like shavings; panicles usually long-exserted and much exceeding the leaves, 6–20 cm. long, rather narrowly flabellate in outline, the few branches stiffly ascending, bearing short, appressed branchlets with approximate spikelets on short, appressed pedicels; spikelets 3–3.7 mm. long, 1.1–1.5 mm. wide, turgid; first glume half to two thirds the length of the spikelet, acuminate, 3–5-nerved; second glume and sterile lemma strongly 5–7-nerved; fruit 1.7–2 mm. long, 1–1.3 mm. wide, oval, obtuse, dark olive-brown at maturity.

TYPE LOCALITY: Austin, Texas.
DISTRIBUTION: Texas to Arizona, and south to central Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 62*.

38. **Panicum lepidulum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 75. 1910.

Plants solitary or in small tufts, erect, 25–70 cm. high; culms usually producing one or two erect branches from the lower nodes, sparsely papillose-pilose to merely scabrous toward

the summit; leaf-sheaths longer than the short lower internodes, shorter than the middle and upper ones, papillose-hispid, the hairs ascending; ligule about 2 mm. long; blades erect, or spreading at the apex, 7–30 cm. long, 5–10 mm. wide, scarcely narrowed to the more or less infolding base, flat or folded, sparsely papillose-pilose to nearly glabrous on both surfaces, glaucous on the upper surface; terminal panicles rather long-exserted, those of the branches short-exserted or slightly included at base, 7–20 cm. long, usually scarcely half as wide, the flexuous branches ascending, bearing short, rather spreading branchlets with 1–3 spikelets toward their ends, the whole forming a more evenly flowered panicle than in *P. Hallii;* spikelets 4–4.2 mm. long, about 1.5 mm. wide, narrowly ovate, turgid, acuminate; first glume about half the length of the spikelet, acuminate, 5–nerved, the midnerve scabrous toward the apex; second glume and sterile lemma strongly 7–9-nerved, the midnerves scabrous toward the apex; fruit 2.3–2.5 mm. long, 1.3–1.5 mm. wide, oval, turgid, obtuse.

TYPE LOCALITY: Chihuahua, Chihuahua.
DISTRIBUTION: Mexico to Panama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 64.*

39. **Panicum Ghiesbreghtii** Fourn. Mex. Pl. Gram. 29. 1886.

?*Panicum Virletii* Fourn. Mex. Pl. Gram. 29. 1886.
Panicum hirtivaginum Hitchc. Contr. U. S. Nat. Herb. **12**: 223. 1909.

Plants in small tufts, rather robust; culms erect, papillose, ascending-hirsute, 60–80 cm. high, the nodes densely hirsute; leaf-sheaths mostly longer than the internodes, hirsute like the culms; ligule about 2 mm. long; blades erect or ascending, as much as 60 cm. long and 12 mm. wide, flat, not narrowed to the rounded base, papillose-hirsute on both surfaces or glabrescent; panicles short-exserted, nearly equaled by the upper blades, 20–30 cm. long, usually less than half as wide, the branches ascending, naked at the base, the branchlets more or less appressed, bearing short-pediceled, approximate, but not crowded spikelets 3 mm. long, 1 mm. wide; first glume half to two thirds the length of the spikelet, acute, 3–5-nerved; second glume and sterile lemma strongly 7–9-nerved; fruit 1.9–2 mm. long, 0.9 mm. wide, elliptic.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Mexico and the West Indies to northern South America.
ILLUSTRATIONS: Field Columb. Mus. Publ. Bot. **3**: 32 (as *P. hirticaule*); Contr. U. S. Nat. Herb. **15**: *f. 65.*

40. **Panicum hirsutum** Sw. Fl. Ind. Occ. 173. 1797.

Plants robust; culms as much as 1 cm. thick and 1.5 meters or more high, simple or sparingly branching, glabrous or with a few scattered hairs, the nodes appressed-pubescent; leaf-sheaths mostly overlapping, hirsute with spreading stiff hairs, these causing mechanical irritation to the skin; ligule dense, about 3 mm. long; blades flat, 20–50 cm. long, 20–35 mm. wide, scarcely narrowed to the rounded base, glabrous or with a few hairs toward the base, the margin serrulate; panicles short-exserted or included at base, 20–35 cm. long, 3–12 mm. wide, at first compact, with ascending branches, but becoming diffuse at maturity, the branches widely spreading; spikelets 2–2.2 mm. long, about 0.9 mm. wide, rather turgid, abruptly pointed; first glume scarcely half the length of the spikelet, acute, 3–5-nerved; second glume and sterile lemma 5–7-nerved; fruit 1.5 mm. long, 0.7 mm. wide, elliptic.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: West Indies and central Mexico to northern South America.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 66.*

41. **Panicum maximum** Jacq. Coll. **1**: 76. 1786.

Panicum polygamum Sw. Prodr. 24. 1788.
Panicum laeve Lam. Tab. Encyc. **1**: 172. 1791.
Panicum jumentorum Pers. Syn. Pl. **1**: 83. 1805.
Panicum scaberrimum Lag. Gen. & Sp. Nov. 2. 1816.
Panicum trichocondylum Steud. Syn. Gram. 74. 1854.
Panicum praticola Salzm.; Doell, in Mart. Fl. Bras. **2**^{2}: 203, as synonym. 1877.

Plants light-green, 1–2.5 meters high, or taller in cultivation, in tufts of few to many culms, from creeping rootstocks; culms robust, erect or sometimes geniculate and rooting at the lower nodes, glabrous, the nodes usually densely hirsute; leaf-sheaths shorter than the internodes, papillose-hirsute to glabrous-ciliate, usually a dense ring of pubescence at the juncture with

the blade; ligule 4–6 mm. long, stiffly and densely ciliate from a membranaceous base; blades erect or ascending, flat, 30–75 cm. long, 1–3.5 cm. wide, very scabrous on the margin, otherwise glabrous, or hirsute on the upper surface at the base; panicles finally long-exserted, 20–50 cm. long, usually about one third as wide, densely flowered, the long, rather stiff branches ascending, naked at the base, the lower in whorls, the axils pilose, the branchlets short, appressed, bearing more or less clustered, short-pediceled spikelets; spikelets 3–3.3 mm. long, 1–1.1 mm. wide, and about as thick, oblong-ellipsoid, glabrous, somewhat shining, faintly nerved; first glume about one third the length of the spikelet, obtuse; second glume and sterile lemma subequal, slightly exceeding the fruit, thin in texture, the lemma inclosing a staminate flower; fruit 2.3–2.5 mm. long, about 1 mm. wide, elliptic, transversely rugose, minutely puberulent at the apex.

TYPE LOCALITY: Guadeloupe.
DISTRIBUTION: Introduced in America, from Florida, Mexico, and the West Indies to tropical South America; also in the tropical parts of the Old World.
ILLUSTRATIONS: Vasey, Agr. Grasses U. S. *pl. 5*; ed. 2. *pl. 9*; Field Columb. Mus. Publ. Bot. **3**: 33; Bull. U. S. Dep. Agr. Agrost. **14**: *f. 64*; Contr. U. S. Nat. Herb. **15**: *f. 67*.

42. **Panicum plenum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 80. 1910.

Plants mostly in large clumps, 1–2 meters high, from a stout rootstock, mostly glaucous; culms robust, compressed, glabrous, usually decumbent at base, sometimes branching at the lower nodes; leaf-sheaths overlapping on the short lower internodes, shorter than the upper, glabrous, or the lower sometimes pubescent toward the summit, more or less keeled; ligule densely ciliate, about 2 mm. long; blades erect or ascending, or the lower spreading and soon deciduous, flat, 20–35 cm. long, 7–17 mm. wide, glabrous on both surfaces or rarely sparsely pilose on either surface toward the base, the upper surface scarcely scabrous; panicles 20–50 cm. long, about two thirds as wide, the slender branches somewhat spreading, the general appearance much like that of *P. bulbosum*, but proportionately wider, the main axis nearly smooth; spikelets 3–3.4 mm. long, 1.2 mm. wide, oblong-elliptic, glabrous, rather strongly nerved; first glume scarcely half the length of the spikelet or less, subacute, 3-nerved; second glume and sterile lemma subequal, scarcely exceeding the fruit, the palea of the sterile floret about as long as its lemma; fruit 2.9–3 mm. long, 1 mm. wide, elliptic, acute, only very obscurely rugose, minutely puberulent at the apex.

TYPE LOCALITY: Near Silver City, New Mexico.
DISTRIBUTION: Texas to Arizona and central Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 69*.

43. **Panicum bulbosum** H. B. K. Nov. Gen. & Sp. **1**: 99. 1815.

Panicum avenaceum H. B. K. Nov. Gen. & Sp. **1**: 99. 1815.
Panicum gongylodes Jacq. f. Eclog. Gram. 30. 1815.
Panicum confusum Trin.; Nees, Agrost. Bras. 174, as synonym. 1829.
Panicum nodosum Willd.; Steud. Nom. ed. 2. **2**: 260, as synonym. 1841.
Panicum maximum gongylodes Doell, in Mart. Fl. Bras. **2**^{2}: 203. 1877.
Panicum maximum bulbosum Vasey, in Rothr. Bot. Wheeler's Surv. 295. 1878.
Panicum polygamum gongylodes Fourn. Mex. Pl. Gram. 28. 1886.
Panicum bulbosum avenaceum Beal, Grasses N. Am. **2**: 132. 1896.

Plants in tufts of few to several culms, 1–2 meters high; culms robust, erect, glabrous, the lowest internode thickened into a hard, corm-like base, 1–2 cm. thick, budding at the base, sometimes one or more corms of previous years attached; leaf-sheaths shorter than the internodes, glabrous or scabrous to pilose toward the summit, the lower often appressed-pubescent at base; ligule scarcely 1 mm. long; blades erect or ascending, flat, 25–60 cm. long, 3–12 mm. wide, scabrous on the upper surface, often pilose toward the base, glabrous beneath; panicles long-exserted, 20–50 cm. long, usually about half as wide, rather many-flowered, the slender, flexuous branches ascending or somewhat spreading, solitary or fascicled, naked at the base, the branchlets 1 to several cm. long, bearing scarcely clustered, rather short-pediceled spikelets, the axes and pedicels very scabrous; spikelets 3.5–4.2 mm. long, 1.2–1.4 mm. wide, slightly pointed, more strongly nerved than in *P. maximum*, glabrous, commonly purplish; first glume half to two thirds the length of the spikelet, bluntly pointed, 3-nerved; second glume shorter than the fruit and sterile lemma, the latter rarely inclosing a staminate flower; fruit 3.2–4 mm.

long, narrowly ovate, more finely transversely rugose than in *P. maximum*, the bluntly pointed apex puberulent.

TYPE LOCALITY: Near Guanajuato, Guanajuato.
DISTRIBUTION: New Mexico to Arizona and southern Mexico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Bot. **12**[1]: *pl. 2*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 56* Contr. U. S. Nat. Herb. **15**: *f. 71*.

Panicum bulbosum minus Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 38. 1889. *Panicum sciaphilum* Rupr.; Fourn. Mex. Pl. Gram. 19. 1886. *Panicum bulbosum sciaphyllum* Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 83. 1910. Distinguished by its smaller size, narrower blades and smaller spikelets (2.8–3.2 mm. long). ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 73*.

44. **Panicum repens** L. Sp. Pl. ed. 2. 87. 1762.

Panicum notatum Retz. Obs. **4**: 18. 1786.
Panicum arenarium Brot. Fl. Lusit. **1**: 82. 1804.
Panicum littorale C. Mohr; Vasey, Bot. Gaz. **4**: 106. 1879.

Culms rigid, 30–80 cm. high, erect or ascending from the nodes of strong, horizontal, often extensively creeping rootstocks, simple, clothed at the base with bladeless, overlapping sheaths; upper leaves numerous, their sheaths usually overlapping, rather loose, more or less pilose, especially along the margin, or sometimes glabrous; ligule about 1 mm. long; blades 4–15 cm. long, 2–5 mm. wide, or those of sterile shoots sometimes longer and wider, firm, stiffly ascending or spreading, often conspicuously distichous, flat or folded, long-pilose at the base on the upper surface, otherwise sparsely pilose to glabrous on both surfaces; panicles rather short-exserted, stramineous, 7–12 cm. long, one third to two thirds as wide, the somewhat distant branches stiffly ascending, rarely spreading, usually naked at the base, bearing short, appressed branchlets with short-pediceled, approximate spikelets toward the ends; spikelets 2.2–2.5 mm. long, 1–1.1 mm. wide, ovate, abruptly pointed; first glume about one fifth as long as the spikelet, broad, loose and truncate, obscurely nerved; second glume and sterile lemma equal, 5–7-nerved; fruit 1.8–1.9 mm. long, about 1 mm. wide, obovate-elliptic.

TYPE LOCALITY: Probably Spain.
DISTRIBUTION: Sea beaches from Alabama to Brazil; also in the warmer parts of the Old World.
ILLUSTRATIONS: Cav. Ic. *pl. 110*; Contr. U. S. Nat. Herb. **15**: *f. 75*.

45. **Panicum Gouini** Fourn. Mex. Pl. Gram. 28. 1886.

Panicum Gouini pumilum Fourn. Mex. Pl. Gram. 28. 1886.
Panicum repens confertum Vasey, Bull. Torrey Club **13**: 25. 1886.
Panicum halophilum Nash; Lloyd & Tracy, Bull. Torrey Club **28**: 86. 1901.

Plants like *P. repens* in habit; culms on the average lower, rarely more than 30 cm. high; leaf-sheaths and blades usually glabrous, more crowded than common in *P. repens;* panicles smaller, narrower, more densely flowered, commonly purple; spikelets 2–2.4 mm. long, about 1 mm. wide; first glume broadly triangular, one third to nearly half the length of the spikelet; second glume slightly shorter than the sterile lemma.

TYPE LOCALITY: Vera Cruz.
DISTRIBUTION: Sea beaches from Alabama to the state of Vera Cruz.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 52* (as *P. repens*); Contr. U. S. Nat. Herb. **15**: *f. 77*.

46. **Panicum virgatum** L. Sp. Pl. 59. 1753.

Panicum coloratum Walt. Fl. Car. 73. 1788. Not *P. coloratum* L. 1767.
Eatonia purpurascens Raf. Jour. de Phys. **89**: 104. 1819.
Panicum pruinosum Bernh.; Trin. Gram. Pan. 191, as synonym. 1826.
Panicum giganteum Scheele, Linnaea **22**: 340. 1849.
Panicum glaberrimum Steud. Syn. Gram. 94. 1854.
Ichnanthus glaber Link; Steud. Syn. Gram. 94, as synonym. 1854.
Panicum Kunthii Fourn.; Hemsl. Biol. Centr. Am. Bot. **3**: 490. 1885. Not *P. Kunthii* Steud. 1841.
Panicum virgatum confertum Vasey, Bull. Torrey Club **13**: 26. 1886.
Panicum virgatum elongatum Vasey, Bull. Torrey Club **13**: 26. 1886.
Panicum virgatum diffusum Vasey, Bull. Torrey Club **13**: 26. 1886.
Chasea virgata Nieuwl. Am. Midl. Nat. **2**: 64. 1911.
Milium virgatum Lunell, Am. Midl. Nat. **4**: 212. 1915.

Plants erect, usually 1–2 meters high, producing numerous scaly, creeping rootstocks, glabrous throughout except as noted, commonly purple-tinged, often glaucous, especially on the internodes and upper surface of the blades; culms in large to small clumps or even solitary,

simple, robust, tough, and hard; leaf-sheaths longer than the rather short lower internodes, usually shorter than the upper ones, often ciliate, sometimes villous at the throat; ligule dense, 2–4 mm. long; blades ascending, 10–60 cm. long, 3–15 mm. wide, slightly narrowed toward the base, and gradually long-acuminate, flat, sometimes pilose on the upper surface toward the base, rarely to the apex, the margins scabrous; panicles long-exserted, 15–50 cm. long, mostly one third to half as wide, but sometimes contracted, or very loose and nearly as wide as long, usually many-flowered, the slender, scabrous, usually fascicled branches ascending or spreading, naked at base, repeatedly branching along the upper half or two thirds; spikelets rather short-pediceled, 3.5–5 mm., rarely but 3 or as much as 6 mm. long, 1.2–1.5 mm. wide, elliptic-ovate, acuminate, strongly nerved; first glume clasping, two thirds to three fourths the length of the spikelet, rarely equaling the sterile lemma, acuminate to cuspidate, 5-nerved; second glume longer than the sterile lemma, both much exceeding the fruit, 5–7-nerved; fruit narrowly ovate, the margins of the lemma inrolled only at base.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Maine to Montana, south to Florida and Arizona, and through Mexico to northern South America.
ILLUSTRATIONS: Trin. Ic. *pl. 228*; Vasey, Agr. Grasses U. S. *pl. 12*; de. 2. *pl. 16*; Bull Tenn. Exp. Sta. **7**: *pl. 9, f. 35*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 54*; **14**: *f. 68*; Contr. U. S. Nat. Herb. **15**: *f. 79*; Britt. & Brown, Ill. Fl. *f. 270*; ed. 2. *f. 323*.

Panicum virgatum cubense Griseb. Cat. Pl. Cub. 233. 1866. *Panicum virgatum obtusum* Wood, Bot. & Fl. ed. 1871. 392. 1871. *Panicum virgatum breviramosum* Nash, Bull. Torrey Club **23**: 150. 1896. Differing in the usually more slender culms, solitary or few in a clump, the usually narrow panicles with ascending branches, and the smaller spikelets, 2.8–3.2 mm. long, the first glume usually about half the length of the spikelet, acute but usually not acuminate-pointed, the second glume and sterile lemma about equal and but slightly exceeding the fruit, the latter about 2 mm. long. Atlantic Coastal Plain from Connecticut to Florida; also in Bermuda and Cuba. Originally described from Cuba. ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 81*.

47. **Panicum ichnanthoides** Fourn. Mex. Pl. Gram. 30. 1886.

Panicum Buchingeri Fourn. Mex. Pl. Gram. 30. 1886.

Plants in large clumps with knotted crowns, without creeping rootstocks; culms 1.5–2 m. high, erect or decumbent at the base, smooth, firm and hard, more or less glaucous about the nodes; leaf-sheaths shorter than the internodes, pubescent on the overlapping margin toward the apex, otherwise glabrous; ligule about 3 mm. long, membranaceous-ciliate; blades elongate, mostly 8–15 mm. wide, flat except at the narrowed and usually inrolled base, scabrous on the margins, villous on the upper surface near the base, otherwise glabrous; panicles 20–40 cm. long, one fourth to one third as wide, the long slender branches ascending; spikelets 3.5–4.2 mm. long, about 1.5 mm. wide, similar to those of *P. virgatum*.

TYPE LOCALITY: Orizaba, Vera Cruz.
DISTRIBUTION: Southern Mexico to Nicaragua.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 55*.

48. **Panicum altum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 488. 1915.

Plants perennial, in tangled masses, the culms decumbent and straggling at base, stout, reed-like, as much as 6 mm. in diameter, ascending to a height of 2–4 meters, smooth and glaucous, simple or with extravaginal mostly erect sterile branches from the swollen nodes; leaf-sheaths smooth; ligule a short membrane less than 1 mm. long, the ciliate fringe once or twice as long; blades flat, firm, not greatly elongate, mostly 30–45 cm. long, 8–15 mm. wide, smooth except the scabrous margins; pancles rather more densely flowered than in *P. virgatum*, 20–30 cm. long, narrowly ovoid in outline, open, the slender scabrous branches ascending and spreading, fascicled, some naked at the base with short branchlets intermixed; spikelets rather short-pediceled, 3.2–4 mm. long, about 1.2 mm. wide, turgid, glabrous, the glumes and sterile lemma strongly nerved, pointed, somewhat keeled, usually widely gaping, the first glume about two thirds the length of the spikelet, the second glume and sterile lemma exceeding the fruit, subequal; fruit 2–2.2 mm. long, 1 mm. wide, elliptic.

TYPE LOCALITY: Point Chamé, Panama.
DISTRIBUTION: Costa Rica to Trinidad.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 57*.

49. **Panicum Havardii** Vasey, Bull. Torrey Club **14**: 95. 1887.

Panicum virgatum macranthum Vasey, Bull. Torrey Club **13**: 26. 1886. Not *P. macranthum* Trin. 1826.

Plants 1 meter tall or more, pale-green, glaucous, glabrous throughout; culms robust, solitary, erect from creeping rootstocks, simple; leaf-sheaths longer than the internodes; ligule dense, about 3 mm. long; blades erect or ascending, 25–40 cm. long, 5–10 mm. wide, broadest at the base, tapering into long, involute-setaceous tips, sometimes pilose on the upper surface at the base; panicles short-exserted, as much as 40 cm. long, half to three fourths as wide, loosely flowered, the mostly verticillate branches ascending or finally spreading; spikelets 6–8 mm. long, about 2 mm. wide, ovate, acuminate, strongly nerved; first glume clasping, half to two thirds the length of the spikelet, acuminate; second glume slightly shorter than the sterile lemma, both exceeding the fruit, 7–9-nerved; fruit 4.5–5 mm. long, about 1.8 mm. wide, narrowly ovate, the margin of the lemma inrolled only at base.

TYPE LOCALITY: Guadalupe Mountains, Texas.
DISTRIBUTION: Western Texas, southern New Mexico, and adjacent Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 83.*

50. **Panicum amarum** Ell. Bot. S. C. & Ga. **1**: 121. 1816.

Panicum amarum minus Vasey & Scribn.; Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 38. 1889.
Panicum amaroides Scribn. & Merr.; Scribn. Circ. U. S. Dep. Agr. Agrost. **29**: 5. 1901.
Chasea amara Nieuwl. Am. Midl. Nat. **2**: 64. 1911.

Plants glaucous and glabrous throughout; culms solitary from the nodes of extensively creeping, horizontal rootstocks, simple or occasionally branching from the lower nodes, 30–100 cm. high; leaf-sheaths overlapping but commonly narrow and partially exposing the short, very glaucous internodes; ligule dense and silky, about 3 mm. long; blades ascending or spreading, thick, 10–30 cm. long, 5–12 mm. wide, broadest at the base, flat below, involute toward the tip, the margins smooth; panicles short-exserted or included at base, one fourth to one third the height of the plant, or sometimes more, not more than 3 cm. wide, mostly few-flowered, the distant, appressed branches bearing scattered, short, appressed branchlets with approximate, short-pediceled spikelets; spikelets 5–6.5 mm. long, about 2 mm. wide and as much as 3 mm. thick, narrowly ovate, acuminate, strongly nerved; first glume clasping, two thirds to three fourths the length of the spikelet, acuminate, 7–9-nerved, the midnerve usually scabrous toward the apex; second glume slightly longer than the sterile lemma, both much exceeding the fruit, 9-nerved, the midnerves scabrous toward the apex; fruit 3.5 mm. long, about 1.5 mm. wide, narrowly ovate.

TYPE LOCALITY: Probably South Carolina.
DISTRIBUTION: Sandy seashore, Connecticut to Georgia; Mississippi.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **14**: *f. 62*; Circ. 29: *f. 1*; Contr. U. S. Nat. Herb. **15**: *f. 85*; Francis, Book Grasses 65; Britt. & Brown, Ill. Fl. *f. 271*; ed. 2. *f. 322.*

51. **Panicum amarulum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 96. 1910.

Plants glaucous, but less so than in *P. amarum*, glabrous throughout, cespitose in large bunches sometimes as much as a meter across, 1–2 meters high; culms simple above the base, stout, sometimes 1 cm. thick; leaf-sheaths mostly overlapping; ligule dense, about 3 mm. long; blades erect or ascending, 20–50 cm. long, 5–12 mm. wide, broadest at the base, more or less involute, pilose at the base on the upper surface; panicles finally exserted, one third the height of the plant or more, 5–10 cm. wide, slightly nodding, compact, densely flowered, the long, fascicled branches erect but more or less spreading at their tips, spikelet-bearing from the base; spikelets short-pediceled, 4.3–5.5 mm. long, 1.7–2 mm. wide, narrowly ovate, acuminate, strongly nerved; first glume half to two thirds as long as the spikelet, acuminate, 5–7-nerved; second glume slightly longer than the sterile lemma, both 7–9-nerved, pointed beyond the fruit; fruit 3–3.5 mm. long, about 1.4 mm. wide, narrowly ovate, bluntly pointed.

TYPE LOCALITY: Virginia Beach, Virginia.
DISTRIBUTION: Sandy sea shores, Virginia to Florida; Bahamas; Cuba.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 55* (as *P. amarum*); Contr. U. S. Nat. Herb. **15**: *f. 87*; Britt. & Brown, Ill. Fl. *f. 271* (as *P. amarum*); ed. 2. *f. 321.*

52. **Panicum tenerum** Beyr.; Trin. Mém. Acad. St.-Pétersb. VI. 3²: 341. 1834.

Panicum anceps strictum Chapm. Fl. S. U. S. 573. 1860.

Plants in small tufts from a knotted crown, 40–90 cm. high, olivaceous; culms erect, stiff and wiry, producing small, solitary panicles from the upper nodes or remaining simple, glabrous; leaf-sheaths much shorter than the internodes, the upper glabrous, the lower sparsely to copiously papillose-pubescent toward the summit with soft, spreading or reflexed hairs; blades 4–15 cm. long, 2–4 mm. wide (the uppermost much reduced), erect, firm, drying involute at least toward the summit, pilose on the upper surface toward the base, or the lower sometimes on both surfaces; terminal panicles rather short-exserted, 3–8 cm. long, rarely more than 5 mm. wide, the short, appressed, subracemose branches bearing rather crowded spikelets throughout their length, the pedicels usually with a few long hairs at the summit; spikelets 2.2–2.8 mm. long, 0.8–1 mm. wide, narrowly ovate, pointed; first glume clasping, half as long as the spikelet or more, 1-nerved, glabrous or obscurely strigose toward the summit; second glume and sterile lemma equal, exceeding the fruit, 5–7-nerved, glabrous; fruit 1.7–1.8 mm. long, about 0.8 mm. wide.

TYPE LOCALITY: Georgia.
DISTRIBUTION: Georgia to Texas; Bahamas, Cuba, and Porto Rico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 46* (as *P. stenodes*); Contr. U. S. Nat. Herb. **15**: *f. 89*.

53. **Panicum stenodoides** Hubbard, Proc. Am. Acad. **49**: 497. 1913.

Plants perennial, in dense tufts; culms erect, slender and wiry, glabrous or sparsely pilose below the glabrous nodes, 20–40 cm. high, producing from the upper nodes slender leafless panicle-bearing branches; leaf-sheaths papillose or more or less papillose-pilose, the lowermost bladeless, glabrous, in age fibrous; ligule membranaceous, about 0.3 mm. long; blades erect, flat at base, involute toward the apex, 3–8 cm. long, 1–2 mm. wide, more or less papillose or papillose-pilose, at least on the upper surface, sometimes glabrous; panicles short-exserted, usually exceeded by the uppermost blade, about 1 cm. long, narrow, bearing 3–7 spikelets on appressed scabrous pedicels, rarely with a few delicate hairs at the apex of the pedicels; spikelets 2–2.1 mm. long, 0.9 mm. wide, turgid, attenuate at base, glabrous; first glume about half as long as the spikelet; second glume and sterile lemma subequal, barely covering the fruit, strongly nerved; fruit 1.7 mm. long, 0.8 mm. wide.

TYPE LOCALITY: British Honduras.
DISTRIBUTION: British Honduras to Panama; also in Trinidad.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 62*.
A closely allied species, *Panicum caricoides* Nees, distinguished by the long stiff hairs at the summit of the pedicels, is found from Trinidad to Brazil.

54. **Panicum stenodes** Griseb. Fl. Brit. W. Ind. 547. 1864.

Panicum hians Spruce; Griseb. Fl. Brit. W. Ind. 548, as synonym. 1864. Not *P. hians* Ell. 1816.

Plants in small tufts, 25–50 cm. high, glabrous throughout; culms erect or reclining, very slender and wiry, producing from the middle nodes slender branches about equaling the main culm, both this and the branches bearing small, solitary or fascicled panicles from the upper nodes; leaf-sheaths very short, about 1–2 cm. long; blades 1–4 cm. long, 1–2 mm. wide, the upper often reduced to mere points, erect, firm, involute; panicles short-exserted, the lateral often partly included, 1–2 cm. long, 1–2 mm. wide, subracemose; spikelets 1.4–1.6 mm. long, about 0.7 mm. wide, elliptic, rather turgid; first glume about half the length of the spikelet, blunt, nerveless or 1-nerved; second glume and sterile lemma equal, scarcely exceeding the fruit, 5-nerved; fruit 1.3 mm. long, 0.6 mm. wide.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: West Indies and Costa Rica to Brazil.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 91*.

55. **Panicum agrostoides** Spreng. Pugill. **2**: 4. 1815.

Panicum rigidulum Bosc; (Spreng. Syst. **1**: 320, as synonym. 1825) Nees, Agrost. Bras. 163. 1829.
Agrostis polystachya Bosc; Steud. Nom. ed. 2. **1**: 40, as synonym. 1840.
Panicum elongatum ramosius C. Mohr, Contr. U. S. Nat. Herb. **6**: 357. 1901.

Plants in dense clumps, from a short caudex, with numerous shoots of short leaves at the base, erect, glabrous throughout except as noted, 50–100 cm. high or more; culms rather stout, compressed; leaf-sheaths longer than the internodes, keeled, occasionally pilose on the sides at the juncture with the blade; ligule erose, about 1 mm. long; blades erect, conduplicate at the base, but flat above or sometimes drying involute, 20–50 cm. long, rarely longer, 5–12 mm. wide; panicles terminal and axillary, finally long-exserted, 10–30 cm. long, rarely longer, usually half to two thirds as wide but occasionally diffuse and nearly as wide as long, the stiff branches ascending or sometimes spreading at maturity, with more or less divergent, densely flowered branchlets, commonly from the lower side, the ultimate branchlets and short pedicels appressed, scabrous, the latter usually bearing at the summit one to several delicate white hairs, these often one fourth to one third as long as the spikelet; spikelets 1.8–2 mm. long, in occasional specimens 2.2 mm. long, 0.7–0.8 mm. wide; first glume hardly half the length of the spikelet; second glume and sterile lemma subequal, 5-nerved, the midnerves scabrous at the summit; fruit 1.3 mm. long, 0.6 mm. wide.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Maine to Kansas, and south to Florida and Texas; California.
ILLUSTRATIONS: Torr. Fl. N. Y. *pl. 148*; Trin. Ic. *pl. 261*; Vasey, Agr. Grasses U. S. *pl. 9*; ed. 2. *pl. 17*; Bull. Tenn. Exp. Sta. 7: *pl. 9. f. 33*; Britt. & Brown, Ill. Fl. *f. 249* (as *P. agrostidiforme*); ed. 2. *f. 325*; Francis, Book Grasses 74; Contr. U. S. Nat. Herb. **15**: *f. 92*.

56. **Panicum condensum** Nash, in Small, Fl. SE. U. S. 93. 1903.

Plants like *P. agrostoides* in habit; culms on the average rather taller, sometimes geniculate at base; leaf-sheaths appressed-pubescent along the sides toward the summit or glabrous; blades often sparsely pilose on the upper surface at the conduplicate base; panicles terminal and axillary, 10–25 cm. long, rarely more than 5 cm. wide, the long, solitary or fascicled branches erect, naked at the base, with appressed branchlets bearing crowded spikelets on short, scabrous, but not pilose pedicels, or these occasionally with one or two erect hairs; spikelets 2.2–2.5 mm. long, about 0.8 mm. wide, turgid; first glume slightly more than half the length of the spikelet, acuminate; second glume slightly longer than the sterile lemma, both acuminate, the tips slightly spreading, scabrous on the midnerves toward the apex; fruit 1.4–1.5 mm. long, about 0.7 mm. wide.

TYPE LOCALITY: Florida.
DISTRIBUTION: New Jersey to Florida and Texas; West Indies.
ILLUSTRATIONS: Ann. Rep. N. J. Mus. **1910**: *pl. 12, f. 1*; Contr. U. S. Nat. Herb. **15**: *f. 94*; Britt. & Brown, Ill. Fl. ed. 2. *f. 326*.

57. **Panicum stipitatum** Nash; Scribn. Bull. U. S. Dep. Agr. Agrost. **17**: ed. 2. 56. 1901.

Panicum elongatum Pursh, Fl. Am. Sept. 69. 1814. Not *P. elongatum* Salisb. 1796.
Panicum agrostoides elongatum Scribn. Bull. Tenn. Exp. Sta. **7**: 42. 1894.

Plants like *P. agrostoides* in habit, often purple-tinged throughout; culms on the average stouter, strongly compressed; leaf-sheaths much overlapping; blades usually equaling or exceeding the terminal panicles, often scabrous on the lower surface; panicles usually several to a culm, sometimes as many as five axillary panicles, commonly dark-purple, short-exserted, 10–20 cm. long, one third to half as wide, densely flowered, the numerous stiff branches ascending, with numerous divaricate branchlets mostly from the lower side and beginning at the base, bearing crowded, subsecund spikelets, the short, scabrous pedicels only rarely with one or two erect hairs; spikelets 2.5–2.8 mm. long, about 0.7 mm. wide, often curved at the point; first glume about half the length of the spikelet; second glume and sterile lemma subequal, scabrous on the midnerve at the acuminate apex; fruit about 1.5 mm. long, about 0.6 mm. wide, short-stipitate.

TYPE LOCALITY: Delaware.
DISTRIBUTION: Connecticut to Missouri, and south to South Carolina and Louisiana.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 9, f. 34*; Contr. U. S. Nat. Herb. **15**: *f. 96*; Britt. & Brown, Ill. Fl. *f. 250*; ed. 2. *f. 328*.

58. **Panicum longifolium** Torr. Fl. U. S. 149. 1824.

Panicum anceps pubescens Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 37. 1889.
Panicum pseudanceps Nash, Bull. Torrey Club **25**: 85. 1898.

Plants in dense tufts, 35–80 cm. high, usually surrounded by basal leaves nearly half as long as the culm; culms rather slender, much compressed, stiff, glabrous; leaf-sheaths mostly shorter than the internodes except at the base, keeled, usually hairy on the sides at the juncture with the blade, otherwise glabrous or villous toward the summit, sometimes densely so; ligule fimbriate-ciliate, 2–3 mm. long, the cilia usually at the sides only, not meeting at the back; blades erect or sometimes recurved or tortuous, conduplicate at base, flat above or somewhat involute, 8–40 cm. long, 2–5 mm. wide, pilose on the upper surface toward the base, sometimes also on the lower surface; lateral panicles few or none; terminal panicles finally long-exserted, much exceeding the leaves, 10–25 cm. long, usually half to two thirds as wide, but sometimes rather contracted, the distant, slender branches solitary or fascicled, ascending, usually naked at base, bearing short, appressed, rather closely flowered branchlets, these and the pedicels scabrous, the latter sometimes with a few hairs at the summit; spikelets 2.4–2.7 mm. long, about 0.7 mm. wide; first glume two fifths to scarcely half the length of the spikelet, acute; second glume slightly longer than the sterile lemma, both keeled, usually spreading at the tip, scabrous on the midnerve at the apex; fruit 1.6 mm. long, 0.6 mm. wide.

TYPE LOCALITY: New Jersey.
DISTRIBUTION: Rhode Island to Florida and Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 98*; Ann. Rep. N. J. Mus. **1910**: *pl. 7, f. 5*; Britt. & Brown, Ill. Fl. *f. 251*; ed. 2. *f. 327*.

59. **Panicum Combsii** Scribn. & Ball, Bull. U. S. Dep. Agr. Agrost. **24**: 42. 1901.

Plants like *P. longifolium* in habit; leaves somewhat more clustered at base; leaf-sheaths glabrous or pubescent along the margin toward the summit; ligule less than 1 mm. long, sometimes a few longer hairs at the margin; blades averaging shorter, rarely 25 cm. long, glabrous or pilose on the upper surface at the base, usually sparsely so; lateral panicles wanting or but one or two; terminal panicles 12–20 cm. long, two thirds to three fourths as wide, few-flowered, the slender, scattered branches ascending; spikelets 3–3.5 mm. long, 0.7–0.8 mm. wide, acuminate; first glume two thirds to three fourths the length of the spikelet; second glume and sterile lemma subequal, usually scabrous on the midnerve, much exceeding the fruit; fruit 1.8–2 mm. long, 0.6–0.8 mm. wide.

TYPE LOCALITY: Chipley, Florida.
DISTRIBUTION: Southern Georgia and northern Florida to Louisiana.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **24**: *f. 16*; Contr. U. S. Nat. Herb. **15**: *f. 100*.

60. **Panicum anceps** Michx. Fl. Bor. Am. **1**: 48. 1803.

?*Panicum pennsylvanicum* Spreng. Bot. Gart. Halle Nachtr. **1**: 30. 1801.
Panicum rostratum Muhl.; Willd. Enum. 1032. 1809.
Agrostis nutans Poir. in Lam. Encyc. Suppl. **1**: 255. 1810.
Panicum nutans Desv. Opusc. 93. 1831.
Panicum anceps angustum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 37. 1889.
Panicum anceps densiflorum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 37. 1889.

Plants in tufts of few to many culms, 50–100 cm. high or more, with numerous stout, scaly rootstocks; culms usually robust, not strongly compressed, glabrous; leaf-sheaths usually shorter than the internodes, glabrous to densely papillose-pilose, especially at the summit; ligule membranaceous, less than 1 mm. long; blades erect, flat or but slightly conduplicate at base, 20–50 cm. long, 4–12 mm. wide, pilose and usually ciliate on the upper surface toward the base, otherwise glabrous, scabrous or more or less pubescent on the upper and occasionally on the under surface; panicles terminal only, or narrow, long-peduncled panicles produced from the upper sheaths, the terminal ones finally long-exserted but often nearly equaled by the long blades, 15–40 cm. long, usually half to two thirds as wide (or occasionally narrow), the long, slender, remote branches somewhat spreading, bearing short, mostly appressed, distant or approximate branchlets with rather crowded, somewhat curved, subsecund spikelets set obliquely on their short, appressed, scabrous pedicels, the first glume toward the main axis, the axis and branches scabrous, usually with a few hairs in the axils; spikelets 3.4–3.8 mm. long, 1–1.2

mm. wide (occasional specimens with smaller spikelets); first glume one third to half the length of the spikelet, acute; second glume and sterile lemma subequal, forming a beak beyond the fruit, the tips open at maturity; fruit 2–2.2 mm. long, about 1 mm. wide.

TYPE LOCALITY: Carolina.
DISTRIBUTION: New Jersey to Kansas, and south to Florida and Texas.
ILLUSTRATIONS: Vasey, Agr. Grasses U. S. *pl. 10*; ed. 2. *pl. 18*; Bull. Tenn. Exp. Sta. 7: *pl. 8, f. 32*; Contr. U. S. Nat. Herb. 15: *f. 102*; Bull. U. S. Dep. Agr. Agrost. 7: *f. 53*; Britt. & Brown, Ill. Fl. *f. 248*; ed. 2. *f. 324*.

61. **Panicum rhizomatum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 109. 1910.

Plants like *P. anceps* in habit, the culms less robust, the scaly rhizomes slender and more numerous; leaves more or less clustered toward the base, the sheaths, except the lowermost, shorter than the internodes, densely to sparsely villous along the margin and toward the summit, a dense ring of pubescence at the juncture with the blade; ligule nearly obsolete; blades erect or the lower commonly spreading, 10–40 cm. long (usually not more than 30 cm.), 5–10 mm. wide, pubescent on both surfaces or sometimes glabrous except on the upper surface toward the base; terminal panicles long-exserted, the usually numerous smaller axillary ones short-peduncled or partially included, 10–25 cm. long, usually less than one third as wide, more or less contracted and densely flowered, rather more compound than in *P. anceps*, the distant primary branches ascending, bearing numerous branchlets 1–3 cm. long, these with appressed, short, approximate branchlets, with crowded spikelets set obliquely on their short, appressed pedicels as in *P. anceps*, but hardly at all secund; spikelets 2.4–2.8 mm. long, about 1 mm. wide; first glume one third to scarcely half as long as the spikelet, acute; second glume and sterile lemma subequal, beaked as in *P. anceps* but less strongly so, little exceeding the fruit; fruit 1.9 mm. long, 0.9 mm. wide.

TYPE LOCALITY: Orangeburg, South Carolina.
DISTRIBUTION: Virginia to Florida, and west to Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 104*.

62. **Panicum ineptum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 17: 509. 1915.

Plants perennial (?); culms slender, apparently ascending, probably 50 cm. long or more, slender, striate-fluted, glabrous or the upper internodes sparsely pilose, producing nearly simple branches as much as 25 cm. long; nodes retrorsely pubescent; leaf-sheaths loose, shorter than the internodes, pilose, the margins densely ciliate; ligule ciliate, about 0.5 mm. long; blades spreading, flat, 3–6 mm. wide, tapering from the truncate base to an acuminate apex, softly pilose on both surfaces; panicles terminal, those of the branches short-exserted, 3–5 cm. long, consisting of few to several short, spreading, densely flowered branches, remote along the slender pilose axis, the branches 4–6 mm. long, bearing 1–8 subsessile spikelets, the rachis pilose; spikelets 2.5–2.7 mm. long, 1.1 mm. wide, blunt; first glume about half as long as the spikelet, 3-nerved, obtuse, pubescent; second glume and sterile lemma equal, inflated, much larger than the fruit, the glume gibbous in the middle, 7-nerved, pubescent, the sterile lemma 3-nerved, glabrous, enclosing a membranaceous palea; fruit 1.6 mm. long, 0.9 mm. wide, elliptic, smooth and shining, the lemma strongly convex.

TYPE LOCALITY: Santo Domingo.
DISTRIBUTION: Known only from the type specimen.
ILLUSTRATION: Contr. U. S. Nat. Herb. 17: *f. 98*.

63. **Panicum longum** Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 111. 1910.

Panicum munitum Trin.; Steud. Nom. Bot. ed. 2. 2: 260, hyponym. 1841.
Panicum pilosum macranthum Scribn. Circ. U. S. Dept. Agr. Agrost. 19: 1. 1900. Not *P. macranthum* Trin. 1825.

Plants perennial, ascending or spreading from a more or less geniculate base; culms rather robust, 1.2–2 meters long, simple or sparingly branching from the lower nodes, glabrous, the nodes glabrous; leaf-sheaths nearly as long as the internodes or overlapping, papillose or

papillose-hirsute (the greater number of papillae without hairs); ligule about 0.5 mm. long; blades ascending or spreading, 10–25 cm. long, 6–12 mm. wide, linear, scarcely narrowed to the rounded base, very sparsely papillose-pilose on the upper surface, glabrous beneath or with a few papillae; panicles short-exserted or included at the base, 20–25 cm. long, 2–5 cm. wide, the branches raceme-like, the lower solitary, distant, the middle and upper opposite or verticillate, the rachises and upper part of the main axis with stiff hairs slightly exceeding the short-pediceled, secund, approximate, but scarcely crowded spikelets; spikelets mostly in pairs, 2.5 mm. long, 0.9 mm. wide, pointed, strongly nerved, the nerves minutely scabrous toward the summit; first glume about half the length of the spikelet, pointed; second glume shorter than the sterile lemma, both slightly exceeding the fruit, the sterile palea obsolete; fruit 2.1 mm. long, 0.8 mm. wide, acute, thin in texture, scabrous toward the summit.

TYPE LOCALITY: Jalapa, Vera Cruz.
DISTRIBUTION: Vera Cruz.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 106*.

64. **Panicum stagnatile** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 528. 1915.

Plants perennial, gregarious; culms erect from an ascending or decumbent base rooting at the nodes, somewhat succulent, 1–2 meters high, about 5 mm. thick, glabrous, simple or occasionally with sterile branches; nodes glabrous or the lower retrorsely appressed-pubescent; leaf-sheaths usually about as long as the internodes or the upper overlapping, ciliate on the margin, otherwise glabrous or pubescent on the sides at the juncture with the blade; ligule membranaceous, less than 1 mm. long; blades flat, 20–35 cm. long, 1.5–3 cm. wide, slightly narrowed to the rounded base, tapering from below the middle to an acuminate apex, sparingly pilose above the ligule, otherwise glabrous, the margins scabrous; panicles 20–40 cm. long, about half as wide, fusiform in outline, the main axis and rachises strongly angled, scabrous, usually sparsely pilose in the lower axils, the numerous slender, compound branches rather stiffly ascending or spreading, solitary or irregularly fascicled, bearing from near the base and usually along the lower side rather stiffly spreading slender secondary branchlets, the lower 1–2 cm. long; spikelets loosely clustered, short-pediceled, glabrous, 1.8 mm. long, about 0.6 mm. wide, acute; first glume about one third as long as the spikelet, acute, scabrous on the keeled midnerve, the second glume two thirds as long as the spikelet, somewhat boat-shaped, scabrous on the keel, the sterile lemma slightly exceeding the fruit, boat-shaped and scabrous on the midnerve at the apex; fruit 1.6 mm. long, 0.4 mm. wide, lanceolate, scabrous at the acute apex, the lemma and palea subindurated, the margins of the lemma inrolled only at the base.

TYPE LOCALITY: Frijoles, Canal Zone.
DISTRIBUTION: Southern Mexico to Panama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 181*.

65. **Panicum polygonatum** Schrad.; Schultes, in R. & S. Syst. Veg. Mant. **2**: 256. 1824.

Panicum potamium Trin. Gram. Pan. 239. 1826.
Panicum hydrophilum Trin.; Nees, Agrost. Bras. 208, as synonym. 1829.
Setaria polygonata Kunth, Rév. Gram. 47. 1829.
Panicum trichogonum Willd.; Steud. Nom. ed. 2. **2**: 261, as synonym. 1841.
Panicum pilosum polygonatum Doell, in Mart. Fl. Bras. **2**²: 211. 1877.
Panicum Bourgaei Fourn. Mex. Pl. Gram. 25. 1886.

Plants rather freely branching from the lower nodes, widely spreading from a decumbent or creeping base, rooting at the nodes; culms 20–100 cm. long, the nodes densely pubescent; leaf-sheaths shorter than the internodes or sometimes nearly equal, densely ciliate, otherwise glabrous or hirsute toward the summit; ligule less than 0.5 mm. long; blades ascending or spreading, oblong-lanceolate, 3–13 cm. long, 8–15 mm. wide, usually ciliate at the cordate base, otherwise glabrous or occasionally sparsely hirsute; panicles 7–20 cm. long, about half as wide, the lower branches solitary, distant, spreading, the upper sometimes in pairs, the numerous raceme-like branchlets secund from the lower side of the branches, the somewhat clustered, short-pedicled spikelets also secund on the branchlets, the rachises sparsely pilose with long, weak hairs, or sometimes glabrous; spikelets 1.4–1.5 mm. long, 0.5 mm. wide, not thickened,

pointed; first glume about half the length of the spikelet, 3-nerved, acute; second glume and sterile lemma equal, 3–5-nerved, exceeding the fruit, the sterile palea only about half the length of its lemma; fruit 1 mm. long, 0.5 mm. wide, obovate.

TYPE LOCALITY: On the Ilhéos River, Brazil.
DISTRIBUTION: Southern Mexico to Paraguay.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 107*.

66. **Panicum milleflorum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 494. 1915.

Plants perennial; culms ascending or erect from an elongate creeping base, rooting at the nodes, glabrous, 0.8–2 meters high, 4–5 mm. thick, compressed, the nodes pubescent or glabrous, usually with one to several long erect panicle-bearing branches; leaf-sheaths about as long as the internodes, keeled toward the summit, ciliate on the margin and puberulent at the juncture with the blade, otherwise glabrous or sparsely papillose-hispid; ligule wanting, the ligular region puberulent; blades flat, 20–40 cm. long, 1–2 cm. wide, rarely wider, long-acuminate, somewhat narrowed to the subcordate base, glabrous or very sparsely hirsute, the margin scabrous; panicles 20–35 cm. long, about 6 cm. wide, in outline tapering to both ends, consisting of numerous ascending or spreading often curving slender spike-like branches solitary or in fascicles along an elongate glabrous axis, the lower distant, the upper approximate, the scabrous angled often sparsely pilose rachises bearing throughout their length along their lower side evenly disposed short approximate densely flowered branchlets, those of the lower branches sometimes as much as 15 mm. long, the others 1–2 mm. long; spikelets subsessile, 1.3 mm. long, about 0.5 mm. wide, glabrous, the first glume about one third the length of the spikelet, the second glume and sterile lemma equal, the lemma inflated boat-shaped with a large membranaceous palea; fruit 1.2 mm. long, 0.4 mm. wide, acute, the lemma boat-shaped.

TYPE LOCALITY: Frijoles, Canal Zone.
DISTRIBUTION: Panama to Trinidad.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 70*.

67. **Panicum pilosum** Sw. Prodr. 22. 1788.

Panicum distichum Lam. Encyc. **4**: 731. 1797.
Panicum pilisparsum G. Meyer, Fl. Esseq. 57. 1818.
Panicum trichophorum Schrad.; Schultes, in R. & S. Syst. Veg. Mant. **2**: 247. 1824.
Setaria disticha Humb.; Spreng. Syst. **1**: 305. 1825.
Panicum distans Willd.; Spreng. Syst. **1**: 305, as synonym. 1825.
Panicum densiflorum Willd.; Spreng. Syst. 1: 320. 1825.
Setaria pilosa Kunth, Rév. Gram. 47. 1829.
Setaria Meyeri Kunth, Rév. Gram. 47. 1829.
Setaria Schraderi Kunth, Rév. Gram. 47. 1829.
Panicum apiculatum Salzm.; Steud. Syn. Gram. 65, as synonym. 1854.

Plants perennial, usually decumbent or creeping at base, rooting at the nodes and sending up erect branches, smaller plants sometimes erect; culms usually branching, 25–100 cm. high, the nodes villous or sometimes glabrous or nearly so; leaf-sheaths elongate, but usually less so than the internodes, keeled, separating more or less from the culm, exposing the long prophyllum, and inrolled at the summit, somewhat simulating a petiole to the blade, glabrous or sometimes ciliate or sparsely hirsute; llgules wanting; blades ascending or spreading, narrowly lanceolate, 4–20 cm. long, 7–15 mm. wide, broadest near the cordate or truncate base, puberulent at the very base, otherwise glabrous or sometimes sparsely pubescent; panicles consisting of 10–40 spike-like, densely flowered, somewhat spreading racemes along an axis 5–15 cm. long, the lower distant; racemes 1–3 cm. long, straight or curved, bearing numerous spikelets in clusters of 1–3 secund on the lower side, the rachises copiously to sparsely papillose-hispid, the hairs 1–3 mm. long, wanting in occasional specimens; spikelets about 1.5 mm. long, 0.6 mm. wide, and nearly 1 mm. thick; first glume about half the length of the spikelet; second glume and sterile lemma equal, the former 5-, the latter 3-nerved, both scabrous on the midnerve at the apex, the sterile palea as long as its lemma, becoming subrigid and forcing open the spikelet; fruit 1.3 mm. long, 0.6 mm. wide.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Mexico and the West Indies to Paraguay.
ILLUSTRATIONS: Trin. Ic. *pl. 213*; Contr. U. S. Nat. Herb. **15**: *f. 108*.

68. **Panicum boliviense** Hack. Repert. Sp. Nov. 11: 19. 1912.

Plants perennial, with long decumbent or creeping bases, rooting and branching at the lower nodes; flowering culms ascending, 0.5–1.5 meters high, glabrous, the nodes glabrous; leaf-sheaths short, glabrous below, usually hirsute toward the summit, especially at the juncture with the blade, the margins ciliate; ligule a ciliate membrane about 0.5 mm. long; blades flat, 8–15 cm. long, 1–2 cm. wide, gradually narrowed from the cordate-clasping base to an acuminate apex, ciliate at base, otherwise glabrous, obscurely cross-nerved between the veins, the margins scabrous; panicles usually short-exserted, 10–25 cm. long, one third to one half as wide, the solitary or fascicled branches increasingly approximate toward the summit of the slender angled scabrous axis, usually pilose in the axils, the lowermost branch solitary and remote, all but the uppermost compound, the branchlets somewhat spike-like, rather distant, usually along the lower side of the rachis, the axils pilose; spikelets subsessile, clustered, 1.5–1.6 mm. long, about 0.7 mm. wide, turgid, the first glume nearly half the length of the spikelet, the second glume and sterile lemma equal, the sterile lemma somewat inflated, subtending a membranaceous palea; fruit 1.4 mm. long, 0.6 mm. wide, subacute.

TYPE LOCALITY: Antahuacana, Bolivia.
DISTRIBUTION: Cuba; southern Mexico to Paraguay.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 73.*

69. **Panicum laxum** Sw. Prodr. 23. 1788.

Panicum agrostidiforme Lam. Tab. Encyc. **1**: 172. 1791.
Panicum tenuiculme G. Meyer, Fl. Esseq. 58. 1818.
Panicum leptomerum J. Presl, in Presl, Rel. Haenk. **1**: 311. 1830.
Panicum diandrum Kunth, Rév. Gram. 393. 1831.
Panicum ramuliflorum Hochst.; Steud. Syn. Gram. 65. 1854.
Agrostis nigrescens Salzm.; Steud. Syn. Gram. 65. 1854.
Panicum nigrescens Salzm.; Steud. Syn. Gram. 66, as synonym. 1854.
Panicum Agrostis Nees; Doell, in Mart. Fl. Bras. 2^2: 213, as synonym. 1877.
Panicum laxum pubescens Doell, in Mart. Fl. Bras. 2^2: 213. 1877.
Panicum pilosum epilosum Fourn. Mex. Pl. Gram. 24. 1886.

Plants more or less spreading, often rooting at the nodes of the decumbent base; culms simple or sparingly branching, 40–100 cm. high or more; leaf-sheaths shorter than the elongate internodes, ciliate and hirsute at the juncture with the blade, otherwise glabrous or papillose-hirsute toward the summit; ligule fimbriate, about 0.5 mm. long; blades erect or ascending, conduplicate or flat, 10–25 cm. long, 5–15 mm. wide, rarely wider, narrowed to the rounded or subcordate base, glabrous or with a few scattered hairs on the upper surface; panicles oblong in outline, 5–30 cm. long, composed of many slender, raceme-like branches, the lower distant, spreading, sometimes as much as 10 cm. long, the upper ascending; branchlets very short, mostly secund on the lower side of the branches, bearing 2 or 3 spikelets, or a few toward the base of the lower branches 5–10 mm. long; spikelets 1.1–1.5 mm. long, about 0.7 mm. wide and as thick or thicker; first glume one third to half the length of the spikelet, subacute, 1–3-nerved; second glume slightly shorter than the sterile lemma, the latter subtending a palea of nearly equal length, this becoming subrigid at maturity forcing open the spikelet; fruit 1–1.1 mm. long, about 0.5 mm. wide.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Mexico and the West Indies to Paraguay.
ILLUSTRATIONS: Trin. Ic. *pl. 215*; Kunth, Rév. Gram. *pl. 110*; Contr. U. S. Nat. Herb. **15**: *f. 109.*

70. **Panicum Stevensianum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 498. 1915.

Plants perennial, tufted, glabrous throughout; culms compressed, 30–60 cm. long, spreading, prostrate, rooting at the nodes, the flowering ends and the branches ascending; leaf-sheaths loose, much shorter than the internodes, compressed, keeled, ciliate on the overlapping margin; ligule a delicate membrane about 0.5 mm. long; blades flat, rather firm, more or less spreading, 4–10 cm. long, 5–10 mm. wide, tapering from a little above the sparsely truncate-cordate base to an acuminate apex; panicles terminal on the culm and branches, short-exserted, 6–10 cm. long, narrow, consisting of several appressed or ascending spike-like branches along an angled axis, the lower branches somewhat remote, 1.5–3 cm. long, usually longer

than the internodes, the upper approximate, all spikelet-bearing to the base, the short-pediceled spikelets in crowded clusters, not secund, along a slender scabrous rachis; spikelets about 2 mm. long and 0.8 mm. wide, acute, somewhat inflated and gaping; first glume about one fourth the length of the spikelet, subacute, 3-nerved; second glume and sterile lemma equal, pointed, slightly exceeding the fruit, 3–5-nerved, the lemma inclosing a large palea and abortive perfect flower; fruit 1.9 mm. long, 0.6 mm. wide, minutely scabrous at the acute apex.

TYPE LOCALITY: Campo Alegre, Porto Rico.
DISTRIBUTION: Porto Rico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 76*.

71. **Panicum exiguiflorum** Griseb. Cat. Pl. Cub. 234. 1866.

Panicum minutiflorum A. Rich. in Sagra, Hist. Cuba **11**: 305. 1850. Not *P. minutiflorum* Rasp. 1825.
Panicum laxum variegatum Griseb. Cat. Pl. Cub. 233. 1866.
Panicum tricolor Hack. Oesterr. Bot. Zeits. **51**: 370. 1901.

Plants perennial, cespitose, sometimes sending out prostrate, stolon-like shoots; culms simple or sparingly branching from the upper nodes, erect from a decumbent or ascending base, slender, wiry, 15–50 cm. high, the lower nodes geniculate; leaf-sheaths much shorter than the elongate internodes, ciliate, otherwise glabrous; ligule membranaceous, delicate, fimbriate; blades appressed or ascending, 2–6 cm. long, 0.5–1.5 mm. wide, glabrous; panicles 3–10 cm. long, one third to half as wide, the slender branches few, spreading or reflexed at maturity, bearing short, divergent branchlets with clustered, short-pediceled spikelets; spikelets 1.4–1.5 mm. long, about 0.5 mm. wide, and twice as thick; first glume about one third the length of the spikelet, 3-nerved; second glume about two thirds the length of the subequal sterile and fertile florets, the sterile palea very large and firm at maturity, much expanding the spikelet; fruit 1.3 mm. long, 0.5 mm. wide, acute.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Bahamas and Cuba.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 110*.

72. **Panicum hians** Ell. Bot. S. C. & Ga. **1**: 118. 1816.

Panicum oblongiflorum Desv. Opusc. 89. 1831.
Panicum jejunum Trin. Mém. Acad. St.-Pétersb. VI. **4**²: 103. 1836.
Aira incompleta Bosc; Steud. Nom. Bot. ed. 2. **1**: 45, as synonym. 1840.
Steinchisma hians (Raf.; B. D. Jackson, Ind. Kew. **2**: 982, as synonym. 1895.) Nash, in Small, Fl. SE. U. S. 105. 1903.

Plants perennial, cespitose; culms simple or sparingly branching, 20–60 cm. high, erect or a few of the outer ones geniculate and rooting at the lower nodes, sometimes prostrate and sending up erect branches; leaf-sheaths usually much shorter than the internodes, keeled, glabrous; ligule about 0.5 mm. long; blades 5–15 cm. long, 1–5 mm. wide, usually scarcely wider than the sheaths, erect, flat or folded, pilose on the upper surface near the base, otherwise glabrous; panicles 5–20 cm. long, usually loose and open, the primary branches few, slender, distant, spreading or drooping, sometimes rather narrow and compact, with ascending branches, the branchlets borne along the upper half or toward the ends only, the short-pediceled spikelets in more or less secund clusters; spikelets 2.2–2.4 mm. long, about 0.8 mm. wide and twice as thick at maturity, rather strongly nerved; first glume about half the length of the spikelet, acute; second glume and sterile lemma subequal, slightly exceeded by the enlarged, indurated sterile palea; fruit 1.8–1.9 mm. long, 0.7 mm. wide, the margins of the lemma scarcely inrolled.

TYPE LOCALITY: Charleston, South Carolina.
DISTRIBUTION: North Carolina to New Mexico, and south to Florida and Vera Cruz.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 11, f. 41*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 48* (as *P. melicarium*); Contr. U. S. Nat. Herb. **15**: *f. 111*; Britt. & Brown, Ill. Fl. *f. 247*; ed. 2. *f. 388*.

Steinchisma was recognized as a valid genus by Nash in the key to the genera of *Paniceae* on page 145.

73. **Panicum cupreum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 120. 1910.

Panicum hians purpurascens Scribn. Proc. Acad. Phila. **1891**: 296. 1891. Not *P. purpurascens* H. B. K. 1815.

Plants perennial, in small tufts; culms simple, erect, 40–60 cm. high, slender, wiry, glabrous; leaves somewhat clustered at the base, their sheaths keeled, glabrous, the lower overlapping,

the upper shorter than the internodes; ligule fimbriate, scarcely 0.5 mm. long; blades 5–15 cm. long, 2–4 mm. wide, at the base scarcely as wide as the sheaths, erect or ascending, folded and more or less twisted, glabrous or with a few long hairs on the upper surface at the base; panicles very long-exserted, 3–11 cm. long, dark-purple, composed of a few distant, slender, appressed or ascending branches, naked about half their length, bearing short, crowded branchlets with densely clustered spikelets along the upper half or toward the ends; spikelets 3 mm. long, about 1.2 mm. wide, and at maturity nearly twice as thick, rather strongly nerved; first glume one third the length of the spikelet or less, obtuse, concave along the midnerve; second glume and sterile lemma equal, exceeded by the enlarged sterile palea, the lemma strongly concave along the midnerve below; fruit 2.4 mm. long, 0.8 mm. wide, the margins of the lemma more inrolled than in *P. hians*, the apex tipped with a minute bit of hyaline membrane.

TYPE LOCALITY: Flor de Maria, State of Mexico.
DISTRIBUTION: Southern Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 113.*

74. **Panicum stoloniferum** Poir. in Lam. Encyc. Suppl. **4**: 274. 1816.

Panicum ctenodes Trin. Ic. *pl. 171.* 1829.
Panicum Leprieurii Steud. Syn. Gram. 65. 1854.

Plants creeping, freely branching; culms 10–50 cm. long, with two opposite lines of minute crisp pubescence, rarely pubescent all over or glabrate, the nodes pubescent or glabrous; leaf-sheaths shorter than the internodes or overlapping on the branches, ciliate, otherwise glabrate, or crisp-pubescent; ligule fimbriate, about 0.2 mm. long; blades 1–5 cm. long, 3–15 mm. wide, the margins undulate, glabrous or sparsely pilose on the upper surface, minutely soft-pubescent beneath; panicles 1–5 cm. long, about one third as wide; racemes 5–10 mm. long, ascending or spreading, the main axis more or less pubescent; spikelets 2.3–2.5 mm. long, about 0.6 mm. wide and 1 mm. thick, glabrous; first glume about one third the length of the spikelet, 3-nerved, blunt; second glume blunt, shorter than the acute sterile lemma, both somewhat boat-shaped, 5-nerved, the sterile palea about half as long as its lemma; fruit 1.3 mm. long, 0.5 mm. wide, acute.

TYPE LOCALITY: Cayenne.
DISTRIBUTION: Guatemala to Brazil and Ecuador.
ILLUSTRATIONS: Kunth, Rév. Gram. *pl. 22*; Trin. Ic. *pl. 171*; Contr. U. S. Nat. Herb. **15**: *f. 114.*

75. **Panicum frondescens** G. Meyer, Fl. Esseq. 56. 1818.

Panicum olyraefolium Raddi, Agrost. Bras. 43. 1823.
Panicum ctenodes majus Trin. Ic. *pl. 171, f. A.* 1829.
Panicum stoloniferum majus Kunth, Rév. Gram. 389. 1831.
Panicum brachyclados Reichenb.; Trin. Mém. Acad. St.-Pétersb. VI. **3**[2]: 251, as synonym. 1834.
Panicum Kegelii Steud. Syn. Gram. 65. 1854.
Panicum umbrosum Salzm.; Steud. Syn. Gram. 65, as synonym. 1854.
Hymenachne frondescens Fourn. Mex. Pl. Gram. 36. 1886.

Culms ascending from a decumbent or creeping base, less freely branching than in *P. stoloniferum*, 30–50 cm. high, compressed, glabrous except below the panicle or sometimes with two lines of pubescence toward the summit of the internodes; nodes black; leaf-sheaths shorter than the internodes, densely ciliate, otherwise glabrous; ligule nearly obsolete; blades 5–11 cm. long, 12–20 mm. wide, acuminate, narrowed toward the base, glabrous; panicles 5–11 cm. long, usually less than one third as wide, rather compact, the numerous, approximate racemes ascending or somewhat spreading, the lower 10–25 mm. long; spikelets 2.6–2.8 mm. long, about 0.6 mm. wide and 1 mm. thick, glabrous; first glume scarcely one third the length of the spikelet, acute, scabrous on the midnerve; second glume and sterile lemma subequal, somewhat boat-shaped, acute, the sterile palea about two thirds as long as its lemma; fruit 1.6 mm. long, 0.5 mm. wide, pointed, short-stipitate.

TYPE LOCALITY: Island of Arouabisch, British Guiana.
DISTRIBUTION: Southern Mexico to Brazil.
ILLUSTRATIONS: Raddi, Agrost. Bras. *pl. 1, f. 6*; Trin. Ic. *pl. 171, f. A*; Contr. U. S. Nat. Herb. **15**: *f. 115.*

76. **Panicum pulchellum** Raddi, Agrost. Bras. 42. 1823.

Eriochloa ? pulchella Kunth, Rév. Gram. 30. 1829.
Panicum leptostachyum J. Presl, in Presl, Rel. Haenk. **1**: 311. 1830.
Hymenachne leptostachya Fourn. Mex. Pl. Gram. 36. 1886.

Plants apparently perennial, decumbent or creeping at base; culms slender, rather freely branching, ascending, pubescent in lines or glabrate, the nodes bearded; leaf-sheaths short, softly pubescent or glabrate; ligule ciliate, about 0.3 mm. long; blades thin, spreading, 1.5–4 cm. long, 4–15 mm. wide, rather abruptly acuminate, asymmetrically subcordate; panicles oblong, 2–12 cm. long, rarely more than 2 cm. wide, the racemes 5–15 mm. long, all about the same length, ascending or finally spreading, distant or approximate toward the summit; spikelets 1.8–2 mm. long, about 0.8 mm. wide, turgid but not thicker than wide, hispid, the hairs longer toward the margin; first glume one third to half the length of the spikelet, acute, 3-nerved; second glume and sterile lemma subequal, acute, the latter bearing at either side of the midnerve a crateriform gland, the sterile palea about three fourths as long as its lemma; fruit 1.3 mm. long, 0.6 mm. wide, rather blunt.

TYPE LOCALITY: Near Rio Janeiro, Brazil.
DISTRIBUTION: Martinique; southern Mexico to Brazil.
ILLUSTRATIONS: Trin. Ic. *pl. 178*; Contr. U. S. Nat. Herb. **15**: *f. 116*.

77. **Panicum biglandulare** Scribn. & Smith, Bull. U. S. Dep. Agr. Agrost. 4: 13. 1897.

Culms ascending from a decumbent base, becoming spreading and much-branched, somewhat compressed, the line of pubescence sparse or wanting; leaf-sheaths densely papillose-ciliate, otherwise glabrous; blades 4–10 cm. long, 10–18 mm. wide, lanceolate, acuminate, narrowed to the rounded base, more or less pilose on both surfaces; panicles 5–12 cm. long, the few distant racemes 0.8–2 cm. long, ascending or finally spreading; spikelets 3.6 mm. long, about 1 mm. wide, pointed; first glume scarcely one third the length of the spikelet, hispid along the midnerve and margin; second glume shorter than the sterile lemma, 7-nerved, hispid, the hairs longer toward the summit and margin, the sterile lemma 5-nerved, hispidulous and along the margins hispid, bearing at either side of the midnerve a crateriform gland, these more prominent than in *P. pulchellum*, the sterile palea nearly as long as its lemma, hispidulous; fruit 2.4 mm. long, 0.7 mm. wide, elliptic, minutely stipitate.

TYPE LOCALITY: Pinabete, Chiapas.
DISTRIBUTION: Chiapas and Guatemala.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **4**: *pl. 4*; Contr. U. S. Nat. Herb. **15**: *f. 117*.

78. **Panicum virgultorum** Hack. Oesterr. Bot. Zeits. **51**: 369. 1901.

Plants perennial, ascending from a decumbent or sometimes a widely creeping base, branching and rooting at the lower, geniculate nodes; culms slender, wiry, 0.4–1 meter or more long, compressed, glabrous, or pubescent below the nodes; nodes pubescent or glabrous; leaf-sheaths often as long as the internodes, usually short-ciliate, otherwise glabrous or the lowermost pubescent; ligule membranaceous; blades 5–10 cm. long, 5–10 mm. wide, narrowly lanceolate, acuminate, narrowed to the base, scabrous on the upper surface, smooth and glossy beneath; panicles mostly long-exserted, 2.5–7 cm. long, half to two thirds as wide, the 2–4 branches ascending, compactly flowered except at the base, or the lower sometimes naked one third its length, the short branchlets and pedicels pubescent; spikelets 1.6 mm. long, 0.9 mm. wide; first glume less than one fourth the length of the spikelet; second glume and sterile lemma equal, 5-nerved; fruit 1.5 mm. long, 0.8 mm. wide, oval, smooth and shining but with sparse, long, appressed, silky hairs.

TYPE LOCALITY: Near Alajuelito, Costa Rica.
DISTRIBUTION: Southern Mexico to Panama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 118*.

79. **Panicum Schmitzii** Hack. Ann. Nat. Hofmus. Wien **17**: 254. 1902.

Plants perennial, ascending, or erect from a long-jointed, creeping base, rooting and branching from the nodes of the decumbent portion, the suberect branches 20–45 cm. high, simple or nearly so; culms puberulent at least below the puberulent nodes; leaf-sheaths short, puberulent, at least toward the summit; ligule ciliate; blades 6–10 cm. long, 10–18 mm. wide, lanceolate, more or less falcate, narrowed to the rounded base, sparsely papillose-hispid on the upper surface, glabrous or with a few scattered papillae or hairs beneath; panicles rather short-

exserted, 4–8 cm. long, the few subracemose branches finally somewhat spreading, pubescent at the base, bearing short, appressed, approximate branchlets of crowded spikelets along the upper two thirds to three fourths of their length; spikelets 1.8 mm. long, 0.9 mm. wide; first glume scarcely one fifth the length of the spikelet; second glume slightly longer than the sterile lemma, both 5-nerved; fruit 1.5 mm. long, 0.8 mm. wide, oval, the lemma sparsely clothed with appressed, silky hairs, the palea glabrous.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Central and southern Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 119*.

80. **Panicum Schiffneri** Hack. Ergebn. Bot. Exp. Akad. Südbras. Gram. 11. 1906.

Plants perennial, with a long branching decumbent base, rooting at the nodes; culms straggling, ascending, 2–3 meters long, slender, more or less compressed, smooth or hirsute or roughened below the nodes, producing long divaricate branches; leaf-sheaths papillose-hispid especially toward the summit, sometimes glabrate below, densely pubescent at the juncture with the blade; ligule membranaceous-ciliate, about 0.5 mm. long; blades flat, rather firm, usually horizontally spreading, 10–15 cm. long, 1.2–2.5 cm. wide (rarely larger), narrowed to the usually asymmetric base, gradually tapering from below the middle to an acuminate apex, scabrous and sometimes sparsely hispid on the upper surface, pubescent above the ligule, scaberulous or puberulent beneath, sometimes sparsely hispid, especially along the midnerve, the fine white margin undulate, scabrous; panicles 10–15 cm. long, usually about as wide, the few slender scabrous branches remote, pilose in the axils, the lower branches solitary or in pairs, widely spreading or reflexed, more than half as long as the very scabrous main axis, naked at the base, the upper branches much shorter, ascending, the rather densely flowered short branchlets appressed along the upper half or two thirds of the branches, the bract at the base of the inflorescence usually well developed; spikelets short-pediceled, aggregate, scarcely 2 mm. long, 1 mm. wide, turgid, glabrous; first glume less than one fourth as long as the spikelet; second glume and sterile lemma equal, exceeding the fruit, obscurely nerved; fruit about 1.5 mm. long, 0.9 mm. wide, elliptic, sparsely covered with long, appressed, silky hairs.

TYPE LOCALITY: Southern Brazil.
DISTRIBUTION: Southern Mexico and Porto Rico to Brazil.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 87*.

81. **Panicum parviglume** Hack. Oesterr. Bot. Zeits. **51**: 429. 1901.

? *Panicum conchatum* Fourn. Mex. Pl. Gram. 25. 1886.
? *Panicum Arundinariae* Trin.; Fourn. Mex. Pl. Gram. 25. 1886.

Culms slender, erect, from an ascending base, 100 cm. high, striate, sparsely papillose-pilose; leaf-sheaths exceeding the internodes, ciliate, sparsely papillose-pilose, striate, more densely pubescent at the juncture with the blade; ligule very short, ciliate; blades lanceolate or linear-lanceolate, 8–16 cm. long, 12–25 mm. wide, flat, firm, rounded at base, acuminate, sparsely hispidulous, especially above, the margin very scabrous; panicles ovate, 15–25 cm. long, the branches spreading or ascending, the lower distant, solitary, 10–12 cm. long, the lower fourth naked, bearded at base; branchlets appressed, the longer 1–2 cm. long, bearing 3–8 subcontiguous spikelets on slender, flexuous, scabrous pedicels 0.5–2 mm. long; spikelets oval, 2 mm. long, 1.2 mm. wide; first glume about one fifth the length of the spikelet; second glume and sterile lemma equal, slightly exceeding the fruit, faintly 5-nerved, minutely apiculate; fruit smooth.

TYPE LOCALITY: Near San José, Costa Rica.
DISTRIBUTION: Southern Mexico to Costa Rica.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 120*.

82. **Panicum verrucosum** Muhl. Descr. Gram. 113. 1817.

Panicum debile Ell. Bot. S. C. & Ga. 1: 129. 1816. Not *P. debile* Desf. 1798.
Panicum umbraculum Bosc; Spreng. Syst. 1: 314, as synonym. 1825.
Panicum rugosum Bosc; Spreng. Syst. 1: 314, as synonym. 1825.

Plants bright-green, solitary or few together, lax, at first erect but soon decumbent at base, and ascending or widely spreading; culms slender, 20–150 cm. high; leaf-sheaths

shorter than the internodes, ciliate; blades thin, lax, flat, 5–20 cm. long, 4–10 mm. wide, somewhat narrowed toward the base, gradually narrowed to the acuminate apex, glabrous; panicles finally exserted, 5–30 cm. long, about as wide, diffuse, small panicles often produced at the lower nodes, at least the ultimate branchlets scabrous, the branches mostly solitary, the branchlets bearing a few short-pediceled spikelets, mostly in twos, toward the ends; spikelets 1.8–2.1 mm. long, about 1 mm. wide, elliptic-obovate, subacute; first glume one fourth the length of the spikelet or less; second glume and sterile lemma warty, glabrous, the glume shorter than the fruit at maturity; fruit 1.8–2 mm. long, 1 mm. wide, elliptic, acute.

TYPE LOCALITY: New Jersey.
DISTRIBUTION: Massachusetts to Florida, and west to Texas; northern Indiana.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 11, f. 42*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 49*; Contr. U. S. Nat. Herb. **15**: *f. 121*; Britt. & Brown, Ill. Fl. *f. 278*; ed. 2. *f. 313*.

83. **Panicum brachyanthum** Steud. Syn. Gram. 67. 1854.

Panicum sparsiflorum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 36. 1889. Not *P. sparsiflorum* Doell, 1877.

Plants weakly ascending or spreading from a decumbent base, freely branching from the lower nodes; culms slender, 30–100 cm. high; leaf-sheaths shorter than the internodes, minutely ciliate; blades 5–15 cm. long, 2–3 mm. wide, narrowed toward the base, often involute and scabrous toward the apex, the uppermost usually reduced; panicles finally exserted, 5–15 cm. long, about as wide, the branches few, scabrous, the lower sometimes as much as 10 cm. long, bearing a few short-pediceled spikelets, mostly in twos, toward the ends; spikelets 3.2–3.6 mm. long, 1.5 mm. wide, elliptic-obovate, abruptly pointed; first glume minute; second glume and sterile lemma subequal, the tubercles bearing stiff, spreading hairs; fruit 2.9–3 mm. long, 1.4 mm. wide, obovate-elliptic, subacute.

TYPE LOCALITY: Texas.
DISTRIBUTION: Louisiana, Oklahoma, and Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 123*.

84. **Panicum pyrularium** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 508. 1915.

Plants annual; culms delicate, 10–13 cm. high, at first erect and simple, finally decumbent and branching, often rooting at the nodes, more or less zigzag, sometimes elongating to 25 or 30 cm.; nodes sparsely pilose or glabrous; leaf-sheaths shorter than the blades, glabrous or sparsely pilose; ligule membranaceous, about 0.5 mm. long; blades thin, flat, spreading, 1–3 cm. long, 2–7 mm. wide (the lower sometimes smaller), narrowly elliptic, somewhat clasping at base, obtuse or acutish at the apex, scabrous on the margins, glabrous or sparsely pilose on both surfaces, sometimes glaucous; panicles terminating the culm and branches, loose and open, 2–5 cm. long, about as wide, oval or pyramidal in outline, the delicate flexuous branches and branchlets spreading or reflexed, smooth, the capillary divaricate pedicels several times longer than the spikelets; spikelets 1.5 mm. long, 0.6 mm. wide, turgid, pyriform, long-attenuate at base, glabrous; first glume about half as long as the spikelet, acute; second glume and sterile lemma 5-nerved, not exceeding the fruit, the glume slightly shorter than the sterile lemma; fruit 1 mm. long, 0.5 mm. wide, turgid.

TYPE LOCALITY: Province of Chiriquí, Panama.
DISTRIBUTION: Panama to Venezuela.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 95*.

85. **Panicum trichoides** Sw. Prodr. 24. 1788.

Panicum capillaceum Lam. Tab. Encyc. **1**: 173. 1791.
Panicum acutifolium Willd.; Spreng. Syst. **1**: 320, as synonym. 1825.
Panicum capillaceum strictius Doell, in Mart. Fl. Bras. **2**^{2}: 249. 1877.

Plants often widely spreading; culms ascending from a decumbent base, the ascending portion 20–40 cm. high, rather slender, leafy, pubescent; leaf-sheaths short, but sometimes overlapping toward the summit and on the branches, ciliate and papillose-hirsute, at least toward the summit; ligule membranaceous-ciliate, scarcely 0.5 mm. long; blades spreading, thin, 2–6 cm. long, 1–2 cm. wide, ovate or ovate-lanceolate, somewhat asymmetric, acuminate, cordate and somewhat clasping at the ciliate base, glabrous or sparsely hirsute on both surfaces; panicles oval or ovate in outline, 5–20 cm. long, nearly as wide, the axis sparsely pilose, the

numerous branches and branchlets and the long pedicels capillary; spikelets 1.2–1.3 mm. long, about 0.5 mm. wide, obovate-elliptic, sparsely hirsute; first glume about half the length of the spikelet, acute, 1-nerved; second glume shorter than the sterile lemma, both 3-nerved, and at maturity sometimes ruptured by the expanding fruit, often only the lower part of each remaining; fruit at maturity 1.3 mm. long, 0.6 mm. wide, elliptic, minutely papillose while immature, becoming smooth but not polished.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Mexico and the West Indies to Brazil and Ecuador.
ILLUSTRATIONS: Field Columb. Mus. Publ. Bot. **3**: 32 (as *P. brevifolium*); Contr. U. S. Nat. Herb. **15**: *f. 125*.
This species has been referred to *Panicum brevifolium* L., of India.

86. **Panicum Urvilleanum** Kunth, Rév. Gram. 403. 1831.

Panicum megastachyum J. Presl, in Presl, Rel. Haenk. 1: 305. 1830. Not *P. megastachyum* Nees, 1826.
Panicum Preslei Kunth, Enum. 1: 121. 1833.
Panicum Urvilleanum longiglume Scribn. Bull. U. S. Dep. Agr. Agrost. **17**: ed. 2. 49. 1901.

Plants robust, erect from a creeping rootstock, 0.5–1 meter high; culms solitary or few in a tuft, simple or branching at the base only, the nodes densely bearded, rarely visible; leaf-sheaths overlapping, loose, densely, retrorsely, harshly villous; ligule densely ciliate, about 2 mm. long; blades 30–60 cm. long, 4–7 mm. wide, tapering from a flat base to a long involute-setaceous point, retrorsely strigose to nearly glabrous on both surfaces; panicles short-exserted, equaled or exceeded by the upper blades, 25–30 cm. long, about half as wide, rather many-flowered, the glabrous to pilose, slender, flexuous branches ascending, producing spikelet-bearing branchlets along the upper half to two thirds of their length; spikelets short-pediceled, 6–7 mm. long, about 2 mm. wide, and as much as 4 mm. thick, ovate, densely silvery- to tawny-villous, strongly nerved but the nerves obscured by the pubescence; first glume clasping, two thirds to nearly as long as the spikelet, sparsely villous or glabrescent toward the acuminate apex; second glume slightly longer and more pointed than the sterile lemma, both exceeding the fruit, the lemma inclosing a villous palea of equal length and a staminate flower; fruit 4.2–4.5 mm. long, about 1.6 mm. wide, the margins of the lemma clothed with long white hairs, otherwise smooth and shining.

TYPE LOCALITY: Chile.
DISTRIBUTION: Southern Arizona and California; also in Chile and Argentina.
ILLUSTRATIONS: Kunth, Rév. Gram. *pl. 115*; Bull. U. S. Dep. Agr. Bot. **13**[1]: *pl. 2*; **17**: *f. 345*; Contr. U. S. Nat. Herb. **15**: *f. 127*.

87. **Panicum parvifolium** Lam. Tab. Encyc. **1**: 173. 1791.

Panicum brasiliense Spreng. Syst. **1**: 321. 1825.
Panicum ascendens Willd.; Spreng. Syst. 1: 321, as synonym. 1825.
Panicum oplismenoides Nash, Bull. Torrey Club **30**: 381. 1903. Not *P. oplismenoides* Hack. 1888.

Plants perennial, cespitose, decumbent or creeping, rooting at the lower nodes, glaucous and glabrous throughout, or more or less pubescent; culms slender, branching, 20–80 cm. long, leafy, with numerous short internodes, these and the nodes sometimes sparsely pilose; leaf-sheaths rarely more than 1 cm. long, ciliate, and sometimes, especially on young shoots, sparsely or even densely pilose; ligule nearly obsolete; blades 1–3 cm. long, 2–6 mm. wide, oblong-lanceolate, rounded or subcordate at base, spreading or reflexed, or the upper and often those of young shoots appressed, sometimes sparsely pilose at the base, or rarely pilose on both surfaces; panicles short-exserted, 2–4 cm., rarely 6 cm. long, about as wide, loosely flowered, the slender, flexuous branches spreading, the branchlets and pedicels divergent; spikelets about 1.5 mm. long, 0.8 mm. wide, turgid, blunt, glabrous; first glume slightly more than half the length of the spikelet, subacute, 3-nerved; second glume and sterile lemma subequal, 5-nerved, the sterile palea nearly as long as its lemma; fruit 1.4 mm. long, 0.8 mm. wide, ovate, smooth and shining.

TYPE LOCALITY: Tropical America.
DISTRIBUTION: Costa Rica and the West Indies to Paraguay.
ILLUSTRATIONS: Trin. Ic. *pl. 236*; Contr. U. S. Nat. Herb. **15**: *f. 130*.
Panicum brasiliense is a pubescent form with oblong-lanceolate moderately firm blades.

Panicum cyanescens Nees (Agrost. Bras. 220. 1829), a South American species, has been collected in British Honduras (see Contr. U. S. Nat. Herb. **17**: 507. *f. 93*). It differs from *P. parvifolium* by the less slender, more erect firm culms, longer blades (3–8 cm. long), and stiffly ascending panicle-branches, naked below.

88. **Panicum Haenkeanum** J. Presl, in Presl, Rel. Haenk. 1: 304. 1830.

Panicum costaricense Hack. Oesterr. Bot. Zeits. **51**: 428. 1901.

Plants perennial, straggling, with culms as much as 2 meters long often rooting at the nodes; culms slender, erect, 0.5–1 meter high, sparingly branched, striate, glabrous or minutely pubescent; leaf-sheaths much shorter than the elongate internodes, papillose-pilose to glabrate, ciliate at least toward the summit; ligule membranaceous, ciliate, about 0.5 mm. long; blades 5–10 cm. long, 6–12 mm. wide, narrowed toward the base, long-acuminate, very sparsely pilose on both surfaces or glabrate; panicles ovoid in outline, 10–15 cm. long, about two thirds as wide, loosely flowered, the slender, flexuous branches ascending or spreading, bearing delicate branchlets throughout, the scattered spikelets on capillary, flexuous pedicels; spikelets 2.4 mm. long, 0.7 mm. wide, elliptic, acute, rather strongly nerved; first glume nearly half the length of the spikelet, acute, hirsute toward the margin; second glume and sterile lemma sub-equal, pointed beyond the fruit, hirsute toward the margin and with very minute papillae bordering the nerves; fruit 1.7 mm. long, 0.6 mm. wide, elliptic, smooth and shining, the margins of the lemma near the base each bowed out into a little angle, giving a somewhat auricled appearance

TYPE LOCALITY: Mexico.
DISTRIBUTION: Mexico to Panama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 129*.

89. **Panicum trichanthum** Nees, Agrost. Bras. 210. 1829.

? *Milium microspermum* Lag. Gen. & Sp. Nov. 2. 1816.
Panicum guayaquilense Steud. Syn. Gram. 85. 1854.
Panicum microspermum Fourn.; Hemsl. Biol. Centr. Am. Bot. **3**: 492. 1885.

Plants often in large bunches; culms ascending from a decumbent base, as much as 1–2 meters long, rather stout, glabrous; leaf-sheaths shorter than the internodes, ciliate, and usually with a villous ring at the juncture with the blade, otherwise glabrous or rarely pubescent toward the summit; ligule membranaceous, less than 0.5 mm. long; blades oblong-lanceolate, usually 10–15 cm. long, 10–15 or rarely 25 mm. wide, cordate, rather strongly nerved, glabrous or puberulent, often pilose above the ligule; panicles 10–30 cm. long, the axis glabrous, the numerous branches and branchlets and the long pedicels capillary, flexuous; spikelets 1.2–1.4 mm. long, 0.6 mm. wide, obovate-fusiform, acute; first glume less than one fifth the length of the spikelet; second glume shorter than the sterile lemma, both 3-nerved and under a lens minutely bullate-rugose, often ruptured and breaking off as the fruit matures, as in *P. trichoides;* fruit 1.2 mm. long, 0.6 mm. wide.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Mexico and the West Indies to Paraguay.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 126*.

90. **Panicum Millegrana** Poir. in Lam. Encyc. Suppl. **4**: 278. 1816.

Panicum hirsutum Lam. Encyc. **4**: 741. F 1797. Not *P. hirsutum* Sw. 1797.
Panicum patentissimum Desv.; Poir. in Lam. Encyc. Suppl. **4**: 283. 1816.
Panicum rugulosum Trin. Gram. Pan. 195. 1826.
Panicum Sellowii Nees, Agrost. Bras. 153. 1829.
Panicum Beyrichii Kunth, Rév. Gram. 231. 1830.
Panicum lasianthum Trin. Ic. *pl. 245*. 1830.
Panicum puberulum Trin. Mém. Acad. St.-Pétersb. VI. **3**^{2}: 277. 1834.
Panicum dispersum Trin. Mém. Acad. St.-Pétersb. VI. **3**^{2}: 282. 1834.
Panicum pilosum leiogonum Rupr.; Galeotti, Bull. Acad. Brux. **9**^{2}: 239, hyponym. 1842.
Panicum Sellowii longevaginatum Rupr.; Galeotti, Bull. Acad. Brux. **9**^{2}: 239, hyponym. 1842.
Panicum Valenzuelanum A. Rich. in Sagra, Hist. Cuba **11**: 304. 1850.
Panicum probandum Steud. Syn. Gram. 76. 1854.
Panicum rugulosum hirtiglume Griseb. Cat. Pl. Cub. 233. 1866.
Panicum rugulosum pubescens Doell, in Mart. Fl. Bras. **2**^{2}: 259. 1877.
Panicum rugulosum subvelutinum Doell, in Mart. Fl. Bras. **2**^{2}: 259. 1877.

Plants perennial, spreading; culms sparingly branching, 0.5–1 meter high, ascending from a decumbent base, softly pubescent to glabrous; leaf-sheaths ciliate and with a dense ring of pubescence at the summit, otherwise papillose-pilose to glabrous; ligule membranaceous, scarcely 0.3 mm. long; blades ascending or spreading, thin, ovate-lanceolate, 4–15 cm. long,

10–30 mm. wide, somewhat asymmetric at the rounded or slightly cordate, sometimes ciliate, base, softly pubescent, or sometimes velvety, on both surfaces to glabrate except near the margin and at the base; panicles short-exserted, finally loose and rather few-flowered, 10–20 cm. long, about two thirds as wide when expanded, the rather few, slender branches stiffly ascending or spreading, bearing toward the ends short, appressed branchlets with 1–3 rather short-pediceled spikelets; spikelets 2–2.3 mm. long, 1–1.2 mm. wide, obovate, obtuse, turgid, at maturity olivaceous or brown, glabrous or more commonly papillose-hispidulous; first glume about two thirds as long as the spikelet, acute; second glume slightly shorter than the sterile lemma, exposing the summit of the fruit at maturity, both 5-nerved, in glabrous spikelets the nerves bordered by interrupted rows of minute papillae; fruit 1.9–2.1 mm. long, about 1 mm. wide, elliptic, obscurely pointed, papillose-roughened, becoming dark-brown at maturity.

TYPE LOCALITY: Cayenne.
DISTRIBUTION: Mexico and the West Indies to Paraguay.
ILLUSTRATIONS: Kunth, Rév. Gram. *pl. 27*; Trin. Ic. *pl. 238*; Contr. U. S. Nat. Herb. 15: *f. 131*.

91. **Panicum glutinosum** Sw. Prodr. 24. 1788.

Panicum obtusiflorum A. Rich. in Sagra, Hist. Cuba 11: 305. 1850.
Panicum Lindenii Griseb. Cat. Pl. Cub. 233. 1866.

Plants perennial, somewhat glaucous; culms erect from a geniculate or decumbent base, often rooting at the lower nodes, 1–2 meters high, robust, compressed, glabrous; leaf-sheaths often longer than the internodes, somewhat keeled, especially the lower, glabrous or sometimes pilose, densely bearded at the juncture with the blade; ligule obsolete; blades elongate-lanceolate, acuminate, 15–50 cm. long, 15–25 mm. wide (the uppermost reduced), abruptly or gradually narrowed at the base, more or less ciliate along the lower portion, glabrous or sometimes very sparsely pilose; panicles rhomboid in outline, 15–30 cm. long, about as wide, the lower branches verticillate, nearly as long as the main axis, stiffly ascending, the axis and branches glabrous, sometimes viscid, bearded in the axils, bearing slender, flexuous, scabrous branchlets, with rather long-pediceled spikelets, mostly along the upper half; spikelets 3 mm. long, 1.5–2 mm. wide, turgid, obovoid, obtuse, olivaceous to brown, the faintly nerved, very viscid glumes whitish on the margin; first and second glumes about equal, slightly shorter than the fruit, the sterile lemma thinner in texture, mostly entirely concealed beneath the first glume, the sterile palea wanting; fruit 2.6 mm. long, 1.2–1.5 mm. wide, obovoid-elliptic, olive-brown, densely minutely puberulent at the summit, otherwise smooth and shining, the margins of the lemma toward the summit scarcely inrolled.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Mexico and the West Indies to Paraguay and Bolivia.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 132*.

92. **Panicum Rudgei** R. & S. Syst. Veg. 2: 444. 1817.

Panicum scoparium Rudge, Pl. Guian. 1: 21. 1805. Not *P. scoparium* Lam. 1798.
Panicum Rudgei brasiliense Raddi, Agrost. Bras. 48. 1823.
Panicum dasytrichum Spreng. Syst. 1: 317. 1825.
Panicum hirsutum Willd.; Spreng. Syst. 1: 317, as synonym. 1825. Not *P. hirsutum* Sw. 1797.
Panicum rhigiophyllum Steud. Syn. Gram. 76. 1854.
Panicum rigens Salzm.; Steud. Syn. Gram. 76, as synonym. 1854. Not *P. rigens* Sw. 1788.
Panicum cayennense divaricatum Doell, in Mart. Fl. Bras. 2^2: 220. 1877.

Plants perennial, yellow-green or tawny; culms robust, 30–100 cm. high, erect or somewhat geniculate at base, often zigzag, especially above, densely and harshly villous; leaf-sheaths nearly equaling the internodes or overlapping, densely papillose-villous or hirsute; ligule membranaceous, ciliate, about 1 mm. long, the hairs of the ligule blending with the hairs of the upper surface of the blade; blades thick, linear, 15–40 cm. long, 5–10 mm. wide, rather rigidly ascending, flat or folded, slightly narrowed toward the base, gradually long-acuminate, densely short-hirsute on both surfaces or glabrate; panicles terminal and in the axils of the approximate upper 2–6 leaves, forming an oblong inflorescence one third the height of the plant, or more, each more or less included at base in the subtending sheath; branches pilose in the axils, branching freely from the base, the branches and branchlets angled, scabrous, the lower branchlets stiffly ascending, the upper and the long pedicels divaricate, somewhat flexuous; spikelets about 3.5 mm. long, 1.5 mm. wide, turgid, somewhat attenuate at base, strongly nerved,

sparsely hirsute, the stiff hairs irregularly distributed; first glume about two thirds the length of the spikelets, acuminate; second glume and sterile lemma subequal, exceeding the fruit, abruptly pointed, the latter subtending a palea and staminate flower; fruit 2.1 mm. long, 1.1 mm. wide, elliptic, smooth and shining, a cartilaginous flap-like appendage at the base.

TYPE LOCALITY: Guiana.
DISTRIBUTION: Jamaica; Costa Rica to Brazil.
ILLUSTRATIONS: Rudge, Pl. Guian. **1**: *pl. 29;* Contr. U. S. Nat. Herb. **15**: *f. 133.*

93. **Panicum megiston** Schultes, in R. & S. Syst. Veg. Mant. **2**: 248. 1824.

Panicum altissimum G. Meyer, Fl. Esseq. 63. 1818. Not *P. altissimum* DC. 1817.
Panicum elatius Kunth, Rév. Gram. 38. 1829.
Panicum tuberculatum J. Presl, in Presl, Rel. Haenk. **1**: 307. 1830.
Panicum Equisetum Nees; Doell, in Mart. Fl. Bras. **2**^{2}: 206, as synonym. 1877.

Plants perennial; culms tall and robust, glabrous; leaf-sheaths papillose-hispid or papillose only; ligule fimbriate, about 1.5 mm. long; blades firm, ascending, 15–40 cm. long or more, 1.5–3 cm. wide, linear-lanceolate, slightly narrowed to the rounded base, glabrous; panicles finally exserted, 40–60 cm. long, the stiff main axis striate-angled, smooth or scabrous, the branches in distant verticils, often as many as 20–30 in a verticil, 10–20 cm. long, slender, stiffly or sinuously ascending, very scabrous, nearly simple, bearing the scattered, short-pediceled spikelets along the upper half or third; spikelets usually purplish at maturity, about 3.4 mm. long, 1.5 mm. wide, globular-obovoid, glabrous; first glume scarcely one third the length of the spikelet, pointed; second glume slightly shorter than the sterile lemma, both abruptly apiculate, 7–9-nerved, the glume about equaling the fruit, the sterile palea rather firm, about as long as the fruit; fruit 2.8 mm. long, 1.4 mm. wide, abruptly pointed, smooth and shining.

TYPE LOCALITY: British Guiana.
DISTRIBUTION: Cuba; Mexico to Paraguay.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 135.*

94. **Panicum depauperatum** Muhl. Descr. Gram. 112. 1817.

Panicum strictum Pursh, Fl. Am. Sept. 69. 1814. Not *P. strictum* R. Br. 1810.
Panicum rectum R. & S. Syst. Veg. **2**: 457. 1817.
Panicum involutum Torr. Fl. U. S. 144. 1823.
Panicum Muhlenbergii Spreng. Syst. **1**: 314. 1825.
Panicum junceum Trin. Gram. Pan. 220. 1826.
Panicum Sprengelii Kunth, Rév. Gram. 39. 1829.
Panicum depauperatum involutum Wood, Class Book ed. 1861. 786. 1861.
Panicum depauperatum laxum Vasey, Bull. U. S. Dep. Agr. Bot. 8: 29. 1889.

Vernal phase with culms several to many in a tuft, 20–40 cm. high, slender but rather stiff, erect or spreading at the summit, glabrous, puberulent or sometimes pilose; nodes ascending-pubescent; leaf-sheaths, except the lowest, shorter than the internodes, glabrous to papillose-pilose; blades linear, 6–15 cm. long, 2–5 mm. wide (the lower shorter), often involute in drying, scabrous on both surfaces, sometimes pubescent beneath; panicles exserted, usually not much exceeding the leaves, 4–8 cm. long, rarely longer, few-flowered, the rather strict, remote branches narrowly ascending at maturity; spikelets 3.2–3.8 mm. long, rarely only 3 mm. or as much as 4 mm. long, 1.5–1.7 mm. wide, elliptic, pointed, glabrous or sparsely pubescent; first glume one third to half the length of the spikelet, subacute; second glume and sterile lemma equal, extending beyond the fruit, forming a beak, strongly 7–9-nerved; fruit 2.1–2.3 mm. long, 1.4–1.5 mm. wide, oval, minutely umbonate at the apex.

Autumnal phase similar to the vernal, the reduced secondary panicles produced on branches from the basal or lower nodes, more or less concealed in the tuft of basal leaves.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Maine to Minnesota, and south to Georgia and Texas.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 13, f. 49*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 385*; Contr. U. S. Nat. Herb. **15**: *f. 136*; Britt. & Brown, Ill. Fl. *f. 268*; ed. 2. *f. 329*.

95. **Panicum perlongum** Nash, Bull. Torrey Club **26**: 575. 1899.

Panicum Pammeli Ashe, Bull. N. Car. Exp. Sta. 175: 116. 1900.

Vernal phase similar to that of *P. depauperatum,* more strict in habit, and in smaller tufts, more constantly pilose and usually papillose, the blades on the average longer and narrower,

sometimes 25 cm. long, pubescent on the lower surface; panicles smaller and narrower, the branches erect, hence appearing more densely flowered; spikelets 2.7–3.2 mm. long, 1.6–1.7 mm. wide, oval, blunt, sparingly pilose; first glume one fourth to one third the length of the spikelet, acute or obtuse; second glume and sterile lemma equal, obtuse, not extending beyond the fruit, strongly 7–9-nerved; fruit 2.4 mm. long, 1.5–1.6 mm. wide, obovate-oval, rounded and minutely umbonate at the summit.

Autumnal phase with secondary panicles usually more numerous than in *P. depauperatum* and sometimes produced from the second node.

TYPE LOCALITY: Oklahoma.
DISTRIBUTION: Manitoba to Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 138*; Britt. & Brown, Ill. Fl. ed. 2. *f. 330.*

96. **Panicum linearifolium** Scribn.; Nash, in Britt. & Brown, Ill. Fl. **3**: 500. 1898.

Vernal phase light-green, in dense tufts, often surrounded by the withered, persistent, more or less curled leaves of the previous year, the culms readily separating, 20–45 cm. high, very slender, erect, spreading or almost drooping at the summit, glabrous, minutely puberulent or rarely pilose; leaf-sheaths usually equaling or exceeding the internodes, sparsely to densely papillose-pilose, the papillae often obscure; blades elongate and erect, usually overtopping the panicles until maturity, 10–35 cm. long (the lower shorter), 2–4 mm. wide, scabrous on both surfaces or often pubescent on the lower, rarely on the upper surface, usually ciliate near the base with long hairs; panicles finally long-exserted, 5–10 cm. long, half to two thirds as wide, rather few-flowered, the scabrous, flexuous branches remote, ascending; spikelets 2.2–2.7 mm. long, 1.3–1.5 mm. wide, oblong-elliptic, obtuse, sparsely pilose with weak, spreading hairs; first glume one fourth to one third the length of the spikelet, obtuse, or pointed by the inrolling of the margins; second glume and sterile lemma equal and equaling the fruit at maturity; fruit 2–2.1 mm. long, 1.2 mm. wide, oval, obscurely umbonate at the summit.

Autumnal phase similar, the reduced secondary panicles produced on short basal branches mostly concealed in the tuft of basal leaves.

TYPE LOCALITY: Washington, District of Columbia.
DISTRIBUTION: Maine to Minnesota, and south to Georgia and Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **11**: *pl. 1*; **17**: *f. 384* (as *P. Enslini*); Contr. U. S. Nat. Herb. **15**: *f. 140*; Britt. & Brown, Ill. Fl. **3**: App. *f. 268a*; ed. 2. *f. 331.*

97. **Panicum Werneri** Scribn.; Nash, in Britt. & Brown, Ill. Fl. **3**: 501. 1898.

Panicum delawarense Ashe, Bull. N. Car. Exp. Sta. 175: 116. 1900.

Vernal phase similar to that of *P. linearifolium*, typical specimens differing as follows: culms stiffer; nodes usually sparingly pilose; leaf-sheaths glabrous, often shorter than the internodes; blades firmer, shorter and wider, 15 cm. long or less, the lower culm-blades 3.5–6 cm. long, 3–6 mm. wide, a few long hairs at the rounded base, scabrous on both surfaces, not pubescent; spikelets 2.1–2.4 mm. long, 1.2–1.3 mm. wide, nearly or quite glabrous.

Autumnal phase similar to the vernal, remaining simple or late in the season bearing simple branches from the lower, rarely from the basal, nodes.

TYPE LOCALITY: Ohio.
DISTRIBUTION: Maine to Minnesota, and south to Ohio and Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 364*; Contr. U. S. Nat. Herb. **15**: *f. 142*; Britt. & Brown, Ill. Fl. **3**: App. *f. 268b*; ed. 2. *f. 332.*

98. **Panicum laxiflorum** Lam. Encyc. **4**: 748. 1797.

Panicum pyriforme Nash, Bull. Torrey Club **26**: 579. 1899.
Panicum aureum Muhl.; Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 4, as synonym. 1900.

Vernal phase with slender culms 20–60 cm. high, erect, or the lower nodes often geniculate, glabrous; nodes bearded with reflexed hairs; leaf-sheaths shorter than the internodes, conspicuously retrorsely pilose; blades mostly 10–18 cm. long, 7–12 mm. wide, acuminate, narrowed toward the base, glabrous on both surfaces and on the margins, or sparsely ciliate; panicles long-exserted, but sometimes equaled by the long upper blades, 8–12 cm. long, nearly as wide, lax, few-flowered, the branches flexuous, spreading, the lower often deflexed; spikelets 2.2–2.3

mm. long, 1.2 mm. wide, oblong-obovate, obtuse; first glume one third to two fifths as long as the spikelet; second glume and sterile lemma equal and covering the fruit at maturity, papillose-pilose; fruit 1.8 mm. long, 1.2 mm. wide, obovate-elliptic, minutely umbonate.

Autumnal phase branching at the base, forming soft, spreading tufts, the sheaths overlapping and the blades but little or not at all reduced, much exceeding the secondary panicles; spikelets more turgid and obtuse than the primary ones.

TYPE LOCALITY: North America.
DISTRIBUTION: Georgia to Florida and Alabama.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 144.*

99. **Panicum xalapense** H. B. K. Nov. Gen. & Sp. 1: 103. 1815.

Panicum pumilum Bosc; Nees, Agrost. Bras. 228, as synonym. 1829. Not *P. pumilum* Lam. 1798.
Panicum rariflorum Rupr.; Galeotti, Bull. Acad. Brux. 9²: 240, hyponym. 1842. Not *P. rariflorum* Lam. 1798.
Panicum Ruprechti Fourn. Mex. Pl. Gram. 21. 1886. Not *P. Ruprechtii* Fenzl, 1854.
Panicum caricifolium Scribn.; Ashe, Jour. Elisha Mitchell Soc. 15: 57, as synonym. 1898.
Panicum xalapense strictirameum Hitchc. & Chase, Contr. U. S. Nat. Herb. 15: 161. 1910.

Vernal phase similar to *P. laxiflorum* in texture and habit; culms and leaf-blades on the average shorter, the blades pilose on one or both surfaces or nearly glabrous, usually short-ciliate, the uppermost more or less convolute at base around the culm; panicles hardly so few-flowered; spikelets 1.9–2 mm. long, 1.1 mm. wide, oblong-obovate, obtuse, the first glume one fourth to one third as long as the spikelet; second glume and sterile lemma pilose, less prominently papillose, the glume shorter than the fruit, the latter 1.5 mm. long and 1 mm. wide, oval, minutely umbonate.

Autumnal phase as in *P. laxiflorum,* but forming usually denser tufts with shorter leaves.

TYPE LOCALITY: Jalapa, Vera Cruz.
DISTRIBUTION: Maryland to Missouri, and south to Florida. Texas, and Guatemala; Hispaniola.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 4: *f. 2*; 17: *f. 378* (both as *P. laxiflorum*); Contr. U. S. Nat. Herb. 15: *f. 146*; Britt. & Brown, Ill. Fl. *f. 262*; ed. 2. *f. 336* (both as *P. laxiflorum*).

Panicum xalapense strictirameum is distinguished by its ovoid, more compact panicles with ascending panicles. It is found from South Carolina to Louisiana. ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 148*.

100. **Panicum ciliatum** Ell. Bot. S. C. & Ga. 1: 126. 1816.

Panicum leucoblepharis Trin. Clav. Agrost. 234. 1822.
Panicum ciliatifolium Kunth, Rév. Gram. 36. 1829.
Panicum ciliatifolium Desv. Opusc. 88. 1831.

Vernal phase with culms 5–30 cm. high, erect or spreading, sparsely pilose toward the summit, the nodes glabrous; leaf-sheaths ciliate on the margin, otherwise glabrous, usually overlapping; blades 3–6 cm. long, 3–8 mm. wide, the uppermost often much smaller, lanceolate, ciliate on the margin with stiff hairs 2–3 mm. long, arising from papillae; panicles 3–4 cm. long, about as wide, with more numerous spikelets than those of *P. xalapense*, the branches spreading, flexuous, the axis pilose; spikelets 1.8–2 mm. long, 1 mm. wide, obovate-elliptic; first glume half the length of the spikelet, subacute; second glume and sterile lemma equal, not exceeding the fruit, villous; fruit 1.7–1.8 mm. long, 0.9 mm. wide, elliptic, the apex minutely umbonate.

Autumnal phase in flat, soft mats, similar to those of *P. xalapense.*

TYPE LOCALITY: South Carolina.
DISTRIBUTION: North Carolina to Florida and Louisiana.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 4: *f. 8*; 17: *f. 379*; Contr. U. S. Nat. Herb. 15: *f. 150*; Britt. & Brown, Ill. Fl. ed. 2. *f. 334.*

101. **Panicum polycaulon** Nash, Bull. Torrey Club 24: 200. 1897.

Panicum dichotomum glabrescens Grriseb. Fl. Brit. W. Ind. 553. 1864.

Vernal phase similar to that of *P. ciliatum;* culms rarely more than 20 cm. high, glabrous, but pilose in the long-exserted panicle; leaf-sheaths sparingly ciliate; blades on the average narrower than those of *P. ciliatum;* spikelets 1.5–1.6 mm. long (exceptionally as much as 2 mm. long), 0.8 mm. wide, obovate, blunt, glabrous; first glume one third to half the length of the spikelet, subacute; second glume and sterile lemma strongly nerved; fruit 1.4 mm. long, 0.8 mm. wide, elliptic, subacute, not umbonate.

Autumnal phase in flat, soft mats, similar to those of *P. xalapense*, but smaller.

TYPE LOCALITY: Tampa, Florida.
DISTRIBUTION: Florida to southern Mississippi and the Greater Antilles.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 380*; Contr. U. S. Nat. Herb. 15: *f. 152.*

102. **Panicum strigosum** Muhl.; Ell. Bot. S. C. & Ga. 1: 126. 1816.

Panicum laxiflorum pubescens Vasey, Contr. U. S. Nat. Herb. **3**: 30. 1892.
Panicum longipedunculatum Scribn. Bull. Tenn. Exp. Sta. **7**: 53. 1894.

Vernal phase similar to that of *P. ciliatum*, but having sparsely pilose culms and leaf-sheaths, bearded nodes, and blades on the average a little wider and more or less pilose on both surfaces; panicles larger, with pilose axis and branches, bearing more numerous, smaller, glabrous spikelets, the latter 1.3–1.5 mm. long, 0.7 mm. wide, obovate, less turgid than in other species of this group; first glume one third to half the length of the spikelet; second glume and sterile lemma equal, faintly nerved; fruit 1.3 mm. long, 0.6–0.7 mm. wide, elliptic, subacute, not umbonate.

Autumnal phase a dense mat, with panicles scarcely rising above the leaves.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Virginia and Tennessee to Florida and eastern Texas, and south to Colombia; Cuba, Santo Domingo, and Jamaica.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 16, f. 61*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 62*; Contr. U. S. Nat. Herb. **15**: *f. 154*; Britt. & Brown, Ill. Fl. ed. 2. *f. 335*.

103. **Panicum aciculare** Desv.; Poir. in Lam. Encyc. Suppl. 4: 274. 1816.

Panicum setaceum Muhl. Descr. Gram. 99. 1817.
Panicum subuniflorum Bosc; Spreng. Syst. **1**: 312. 1825.
Panicum arenicola Ashe, Jour. Elisha Mitchell Soc. **15**: 56. 1898.
Panicum filirameum Ashe, Jour. Elisha Mitchell Soc. **16**: 88. 1900.
Panicum pungens Muhl.; Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 2, as synonym. 1900.

Vernal culms numerous in a tuft, ascending from a spreading base, appressed-pubescent below, glabrate above, 20–50 cm. or, in shaded situations, 60 cm. or more high, the nodes more or less pubescent but not bearded; lower leaf-sheaths villous, the upper glabrous except the ciliate margin; blades stiff, spreading or ascending, narrowed to an involute point, glabrous or the lower sparsely pilose, somewhat papillose-hispid on the margin at base, the middle culm-blades 4–6 cm. long, rarely longer, 2–5 mm. wide, the uppermost shorter, usually only 1–2 cm. long and 1–2 mm. wide; panicles open, 3–7 cm. long, the flexuous branches spreading at maturity; spikelets 1.9–2 mm. long, 1.1 mm. wide, obovate, blunt, the basal attenuation short; first glume about one fourth the length of the spikelet, obtuse or pointed; second glume and sterile lemma equal, papillose-pubescent; fruit 1.6 mm. long, 1 mm. wide, oval-elliptic, glabrous at the apex.

Autumnal phase consisting of numerous bushy-branched culms 10–30 cm. long, spreading and forming dense cushions, the short blades involute, sharp-pointed and usually arcuate, mostly 1–3 cm. long; spikelets more turgid than in the vernal form.

TYPE LOCALITY: Probably Porto Rico, though the published locality is "Indes orientales."
DISTRIBUTION: New Jersey to Florida and eastern Texas; Cuba and Porto Rico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **4**: *f. 9*; Contr. U. S. Nat. Herb. **15**: *f. 156*; Britt. & Brown, Ill. Fl. ed. 2. *f. 338*.

104. **Panicum chrysopsidifolium** Nash, in Small, Fl. SE. U. S. 100. 1903.

Vernal phase with ascending or spreading, rather slender culms, 30–45 cm. high, purplish, grayish-villous, especially below, the nodes bearded; leaf-sheaths much shorter than the internodes, villous like the culm, densely so at the summit; blades 5–10 cm. long, 3–5 mm. wide, tapering from base to apex, conspicuously pointed, villous on both surfaces; panicles finally long-exserted, 4–6 cm. long, about three fourths as wide, the flexuous branches ascending or spreading; spikelets 2 mm. long, 1.2–1.3 mm. wide, obovate, blunt and turgid; first glume one third the length of the spikelet, subacute or obtuse; second glume and sterile lemma subequal, scarcely covering the fruit at maturity, villous, the bullate papillae prominent; fruit 1.7 mm. long, 1.2 mm. wide, broadly elliptic, minutely puberulent at the apex.

Autumnal phase spreading and forming mats, the culms slender, often zigzag toward the tip; blades numerous, flat, becoming papery with age, mostly 1–3 cm. long, 1.5 mm. wide; spikelets more turgid than usual in the primary panicle.

TYPE LOCALITY: Leon County, Florida.
DISTRIBUTION: Florida to Louisiana and the Greater Antilles.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 158*.

105. **Panicum consanguineum** Kunth, Rév. Gram. 36. 1829.

Panicum villosum Ell. Bot. S. C. & Ga. 1: 124. 1816. Not *P. villosum* Lam. 1791.
Panicum commutatum consanguineum Beal, Grasses N. Am. 2: 141. 1896.
Panicum georgianum Ashe, Jour. Elisha Mitchell Soc. 15: 36. 1898.
Panicum cahoonianum Ashe, Jour. Elisha Mitchell Soc. 15: 113. 1899.

Vernal phase with culms ascending or spreading, often geniculate at base, 20–55 cm. high, rather stout, densely felty-villous below, less so above, the nodes bearded; leaf-sheaths villous, the upper often sparsely so; blades erect or ascending, 7–11 cm. long, 5–8 mm. wide (the lowermost shorter and broader), tapering slightly toward the base, more or less involute-pointed, villous on both surfaces or nearly glabrous above, the longitudinal wrinkling conspicuous in the lower blades; panicles 4–8 cm. long, one half to two thirds as wide, the lower branches usually narrowly ascending; spikelets 2.6–2.8 mm. long, 1.6–1.8 mm. wide, obovate, blunt, turgid; first glume one third the length of the spikelet or less; second glume and sterile lemma equal, scarcely covering the fruit at maturity, densely papillose-villous, the bullate papillae prominent; fruit 2 mm. long, 1.5–1.7 mm. wide, minutely puberulent at the apex.

Autumnal phase spreading or decumbent, the numerous branches somewhat flabellately fascicled, the blades mostly 3–4 cm. long, 2–3 mm. wide, flat, thin, and papery.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Virginia to Florida and west to eastern Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 160*; Britt. & Brown, Ill. Fl. ed. 2. *f. 339*.

106. **Panicum angustifolium** Ell. Bot. S. C. & Ga. 1: 129. 1816.

? *Panicum ramulosum* Michx. Fl. Bor. Am. 1: 50. 1803.
Panicum Curtisii Steud. Syn. Gram. 66. 1854.
Chasea angustifolia Nieuwl. Am. Midl. Nat. 2: 64. 1911.

Vernal phase with erect or nearly erect culms 30–55 cm. high, the lowermost internodes gray crisp-villous, the middle and upper glabrous; nodes glabrous or the lower villous, not bearded; lower leaf-sheaths more or less appressed-villous, the upper glabrous, except the usually ciliate margin; blades 8–12 cm., rarely 15 cm. long, 4–8 mm. wide (lowermost blades shorter and broader and longitudinally wrinkled), stiffly ascending, the upper more appressed, long-acuminate, scarcely narrowed at base; panicles long-exserted, 4–10 cm. long, nearly as wide, loosely flowered, the branches at anthesis widely spreading, the lower 3–4 cm. long, often reflexed; spikelets 2.5–2.8 mm. long, 1.4–1.6 mm. wide, elliptic-obovate, turgid; first glume about one third the length of the spikelet, pointed or obtuse; second glume and sterile lemma equal, covering the fruit at maturity, not beaked beyond it, papillose-villous; fruit 2 mm. long, 1.3–1.5 mm. wide, broadly elliptic, minutely puberulent at the obscurely umbonate apex.

Autumnal culms stiffly ascending or somewhat topheavy-reclining, not spreading nor mat-like; blades very numerous, flat, appressed, rather thin and papery; panicles reduced (the later ones often to two or three spikelets), overtopped by the leaves; spikelets commonly more turgid and blunt than those of the primary panicles.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Pennsylvania to Florida, and west to eastern Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 162*; Britt. & Brown, Ill. Fl. *f. 269*; ed. 2. *f. 337*.

107. **Panicum fusiforme** Hitchc. Contr. U. S. Nat. Herb. 12: 222. 1909.

Panicum neuranthum ramosum Griseb. Cat. Pl. Cub. 232. 1866. Not. *P. ramosum* L. 1767.

Vernal phase similar to that of *P. angustifolium;* culms 30–70 cm. high, the basal and lower blades narrower and at least the lowermost softly pubescent beneath, the longitudinal wrinkles obscure, the leaves more or less clustered toward the base of the culms, the panicles thus long-exserted; spikelets 3.3–3.5 mm. long, 1.4–1.5 mm. wide, elliptic, long-attenuate at base; first glume two fifths the length of the spikelet, usually obtuse; second glume and sterile lemma exceeding fruit and somewhat beaked beyond it at maturity, pubescence as in *P. angustifolium;* fruit 2.5 mm. long, 1.4–1.5 mm. wide, broadly elliptic, obscurely puberulent at subacute apex.

Autumnal culms erect or reclining, under favorable conditions forming dense, bushy clusters 30–60 cm. in height; blades soon involute, 3–5 cm. long; spikelets more turgid than those of the primary panicles, 3.5–3.8 mm. long, more pointed; fruit more turgid.

TYPE LOCALITY: Western Cuba.
DISTRIBUTION: Georgia to Florida and Mississippi; Cuba; Jamaica.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 164*.

108. **Panicum arenicoloides** Ashe, Jour. Elisha Mitchell Soc. **16**: 89. 1900.

Panicum orthophyllum Ashe, Jour. Elisha Mitchell Soc. **16**: 90. 1900.

Vernal phase intermediate in appearance between that of *P. angustifolium* and *P. aciculare*, grayish-green, slender, mostly 30--50 cm. high; lower leaf-sheaths and blades softly villous; blades 7–12 cm. long (the lower shorter), 3–4 mm., rarely 5 mm. wide, tapering from the base to a more or less involute apex; panicles 4–6 cm. long, two thirds to three fourths as wide, the lower branches ascending; spikelets 2.1–2.5 mm. long, 1.2–1.3 mm. wide, obovate, obtuse; first glume one third the length of the spikelet, truncate or pointed; second glume and sterile lemma scarcely covering the fruit at maturity, papillose-pubescent; fruit 1.8–1.9 mm.long, 1.1–1.2 mm. wide, obscurely puberulent at the apex.

Autumnal phase bushy-branching, erect or topheavy, the blades involute; spikelets more turgid, the attenuate base in exceptional specimens elongate, lengthening the spikelet to as much as 2.8 mm.

TYPE LOCALITY: Wilmington, North Carolina.
DISTRIBUTION: North Carolina to Florida and eastern Texas; Guatemala.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 166*.

109. **Panicum ovinum** Scribn. & Smith; Scribn. Circ. U. S. Dep. Agr. Agrost. **16**: 3. 1899.

Vernal phase with culms usually few in a cluster, erect or nearly so, glabrous, 30–50 cm. high; leaf-sheaths glabrous or the lowermost appressed-pubescent; blades erect or ascending, stiff, glabrous, the lower somewhat ciliate on the margin at base, the lowermost ovate or lanceolate, as much as 1 cm. wide, those of the mid-culm 10–15 cm. long, 3–6 mm. wide, the uppermost shorter and narrower; panicles usually short-exserted, 5–9 cm. long, three fourths as wide or less, loosely flowered, the lower branches ascending; spikelets 2.1–2.2 mm. long, 1.2–1.3 mm. wide, obovate-elliptic, obtuse, the basal attenuation short; first glume about one fourth the length of the spikelet, usually truncate; second glume and sterile lemma scarcely equaling the fruit at maturity, papillose-pubescent, sometimes minutely so; fruit 1.8 mm. long, 1.1 mm. wide, oval, puberulent at the apex.

Autumnal phase erect or nearly so, the blades becoming loosely involute, not much shorter than the vernal blades; spikelets more turgid, sometimes slightly shorter than those of the primary panicle.

TYPE LOCALITY: Waller County, Texas.
DISTRIBUTION: Arkansas to Mississippi and eastern Texas; Vera Cruz.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 168*.

110. **Panicum neuranthum** Griseb. Cat. Pl. Cub. 232. 1866.

Vernal phase with numerous cespitose, stiff, erect, glabrous culms, 30–60 cm. high; leaf-sheaths glabrous or ciliate on the margin and usually with a few long hairs at the summit, or the lowermost sparsely ascending-pubescent; blades erect or ascending, glabrous or with a few cilia toward the base, the short basal blades few or wanting, those of the middle culm usually 10–15 cm. (sometimes only 5–6 cm.) long, 3–5 mm. wide; panicles finally long-exserted, 5–9 cm. long, narrow, the flexuous branches narrowly ascending, rarely loosely spreading, the branchlets appressed, the short-pediceled spikelets more or less secund along the branches; spikelets 2 mm. long, 1.2 mm. wide, broadly obovate, blunt, the attenuation at base short; first glume about one third the length of the spikelet, truncate or pointed; second glume and sterile lemma scarcely equaling the fruit at maturity, finely papillose-pubescent; fruit 1.8 mm. long, 1.1 mm. wide, elliptic, puberulent at the subacute apex.

Autumnal phase with erect, usually slender culms nearly as tall as the vernal form; blades involute but not stiff, not conspicuously shorter than the vernal blades, 4–10 cm. long; spikelets more turgid, the fruit often slightly exceeding the second glume.

TYPE LOCALITY: Eastern Cuba.
DISTRIBUTION: Southern Florida and Mississippi; Cuba.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 170*; Britt. & Brown, Ill. Fl. **3**: App. *f. 269a*.

111. **Panicum Bicknellii** Nash, Bull. Torrey Club **24**: 193. 1897.

Panicum nemopanthum Ashe, Jour. Elisha Mitchell Soc. **15**: 42. 1898.
Panicum Bushii Nash, Bull. Torrey Club **26**: 568. 1899.

Vernal phase bluish-green; culms erect or ascending, 30–50 cm. high, glabrous, or the lowermost portion puberulent; nodes sparsely bearded or glabrous; leaf-sheaths glabrous or the lower sparsely villous especially above the nodes; blades stiffly ascending, or somewhat spreading, elongate, 8–15 cm. long, 3–8 mm. wide, the uppermost usually longest, narrowed toward the base, there usually ciliate with a few stiff hairs; panicles ovoid, 5–8 cm. long, about two thirds as wide, the branches ascending, bearing few long-pediceled spikelets, these 2.3–2.8 mm. long, 1.1–1.2 mm. wide, oblong-elliptic, sparsely pubescent or rarely glabrous; first glume about one third the length of the spikelet, subacute; second glume and sterile lemma equal, covering the fruit at maturity; fruit 2 mm. long, 1.1 mm. wide, elliptic, subacute.

Autumnal phase erect, branching from the middle nodes, forming a loose, bushy crown of stiffly ascending blades not much reduced and overtopping the narrow, few-flowered panicles.

TYPE LOCALITY: Bronx Park, New York.
DISTRIBUTION: Connecticut to Georgia and Missouri.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 172*; Britt. & Brown, Ill. Fl. **3**: App. *f. 268c*; ed. 2. *f. 333, 340*.

112. **Panicum calliphyllum** Ashe, Jour. Elisha Mitchell Soc. **15**: 31. 1898.

Vernal phase yellowish-green; culms erect, 35–50 cm. high, glabrous, the nodes sparsely villous; leaf-sheaths glabrous, or the lowermost sparingly pubescent, ciliate on the margin; blades ascending, flat, 8–12 cm. long, 9–12 mm. wide, glabrous, ciliate at the rounded base; panicles few-flowered, 7–9 cm. long, half as wide or less, with a few ascending branches; spikelets mostly long-pediceled, 2.9–3 mm. long, 1.2 mm. wide, elliptic, sparsely pubescent; first glume about one third the length of the spikelet; second glume and sterile lemma equaling the fruit at maturity; fruit 2.3 mm. long, 1.1 mm. wide, elliptic, subacute.

Autumnal phase sparingly branching from the middle nodes, the branches about as long as the internodes, erect; blades not greatly reduced; panicles narrow, partly included.

TYPE LOCALITY: Watkins, New York.
DISTRIBUTION: Massachusetts, New York, and Ohio.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 174*.

113. **Panicum nudicaule** Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 31. 1889.

Vernal culms erect from a somewhat spreading base, 40–60 cm. high, glabrous, the lower internodes short, the two upper much elongate, thus producing the effect of a long, nearly leafless stem; nodes glabrous, only the upper two visible; leaf-sheaths glabrous or the overlapping basal ones sometimes sparsely pubescent; ligule ciliate, less than 0.5 mm. long; blades erect, rather thick, 4–10 cm. or some of the lower as much as 13 cm. long, 5–8 mm. wide (the uppermost more or less reduced), nearly linear, abruptly pointed, slightly narrowed and somewhat enveloping the culm at base, glabrous; panicles long-exserted, 4–7 cm. long, hardly as wide, few-flowered, the branches ascending; spikelets 2.7–2.9 mm. long, 1–1.2 mm. wide, narrowly ovate, acuminate, glabrous; first glume one fourth to one third as long as the spikelet, usually pointed; second glume and sterile lemma 7-nerved, exceeding the fruit and pointed beyond it; fruit 2 mm. long, 1 mm. wide, elliptic, acute.

Autumnal phase unknown.

TYPE LOCALITY: Santa Rosa County, Florida.
DISTRIBUTION: Northern Florida and southern Alabama.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 376*; Contr. U. S. Nat. Herb. **15**: *f. 176*.

114. **Panicum microcarpon** Muhl.; Ell. Bot. S. C. & Ga. **1**: 127. 1816.

Panicum nitidum ramulosum Torr. Fl. U. S. 146. 1824.
? *Panicum nitidum barbatum* Torr. Fl. U. S. 146. 1824.

Vernal phase cespitose; culms erect, or sometimes geniculate at base, 30– or usually 60–100 cm. high, the nodes densely bearded with reflexed hairs; leaf-sheaths glabrous, or the lowermost pubescent, often mottled with white spots between the nerves, ciliate on the margin; blades thin, spreading, the upper often reflexed, 10–12 cm. long, 8–15 mm. wide, narrowed toward the base, glabrous, more or less papillose-ciliate at base; panicles finally long-exserted, many-flowered, ovate in outline, 8–12 cm. long, the branches ascending; spikelets 1.6 mm. long, 0.7 mm. wide, elliptic, glabrous, or rarely minutely pubescent; first glume one fourth the length of the spikelet or less; second glume a little shorter than the sterile lemma and slightly exposing the fruit at maturity; fruit 1.3–1.4 mm. long, 0.7 mm. wide, elliptic, slightly pointed.

Autumnal phase much branched from all the nodes, reclining from the weight of the dense mass of branches; blades reduced, flat, mostly 2–4 cm. long, the cilia of the sheaths and the hairs at the base of the blades relatively more conspicuous; panicles much reduced and loosely flowered; tufted basal blades often large, sometimes as much as 8 cm. long and 15 mm. wide.

TYPE LOCALITY: Georgia.
DISTRIBUTION: Massachusetts to Missouri, and south to Florida and eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 59* (as *P. barbulatum*); Contr. U. S. Nat. Herb. **15**: *f. 178*; Britt. & Brown, Ill. Fl. *f. 265* (as *P. barbulatum*); ed. 2. *f. 348*.
This species has frequently been misnamed *Panicum barbulatum* Michx. (see page 253).

115. **Panicum nitidum** Lam. Tab. Encyc. **1**: 172. 1791.

Panicum nodiflorum Lam. Encyc. **4**: 744. 1797.
Panicum dichotomum nitidum Wood, Class-Book ed. 1861. 786. 1861.
Panicum subbarbulatum Scribn. & Merr.; Scribn. Circ. U. S. Dep. Agr. Agrost. **29**: 9. 1901.

Vernal phase cespitose; culms erect or somewhat spreading at base, rather stout, usually 30–60 cm. high, or sometimes as much as 1 meter high, the nodes bearded with reflexed hairs; leaf-sheaths glabrous, or the lower pubescent, ciliate on the margin, more or less mottled or glandular, especially the upper at anthesis; blades firm, glabrous, sometimes sparsely ciliate at the base, 5–12 cm. long, 5–10 mm. wide, the lower ascending, the upper usually reflexed; panicles ovoid, 5–8 cm. long, nearly as wide, rather densely flowered, the axis and ascending branches viscid-spotted; spikelets elliptic, 2 mm. long, 1 mm. wide; first glume less than one third the length of the spikelet, pointed; second glume and sterile lemma subequal, the slightly shorter glume scarcely covering the fruit at maturity; fruit elliptic, 1.7 mm. long, 1 mm. wide, subobtuse.

Autumnal phase erect or more or less reclining from the weight of the foliage, the branchlets and foliage forming large clusters from the nodes of the vernal culm; reduced blades numerous, 1–3 cm. long, 1–3 mm. wide, flat or soon becoming involute; panicles mostly reduced to a few long-pediceled spikelets.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Virginia to Florida, and west to eastern Texas; Bahamas; Cuba.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 180*.

116. **Panicum multirameum** Scribn. Circ. U. S. Dep. Agr. Agrost. **19**: 2. 1900.

Vernal culms erect or soon decumbent, 30–60 cm. high, the nodes villous-bearded; leaf-sheaths strongly ciliate on the margin, especially at the summit, the upper glabrous, the lowermost more or less villous; blades rather thick, 3–6 cm. long, 3–6 mm. wide, glabrous, or rarely puberulent, somewhat ciliate around the base, obscurely white-margined; panicles ovoid, 3–6 cm. long, about three fourths as wide, the branches ascending; spikelets 2 mm. long, 1 mm. wide, elliptic, finely pubescent; first glume one third the length of the spikelet; second glume and sterile lemma equal and just covering the fruit at maturity; fruit 1.7 mm. long, 0.9 mm. wide, rather abruptly subacute.

Autumnal phase decumbent, rooting at the lower nodes, flabellately branching before the maturity of the primary panicle, the branchlets in close, appressed clusters at the ends of the secondary branches; blades reduced, flat or somewhat rolled, appressed; panicles reduced to a few spreading branches or long-pediceled spikelets.

TYPE LOCALITY: Jalapa, Vera Cruz.
DISTRIBUTION: Southern Mexico to Guatemala; Jamaica.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 182*.

117. **Panicum annulum** Ashe, Jour. Elisha Mitchell Soc. **15**: 58. 1898.

Panicum Bogueanum Ashe, Jour. Elisha Mitchell Soc. **16**: 85. 1900.

Vernal phase usually purplish, in small clumps or solitary; culms 35–60 cm. high, the nodes densely bearded; leaf-sheaths shorter than the internodes, velvety-pubescent or the upper nearly glabrous; blades 6–12 cm. long, 7–13 mm. wide, densely velvety-pubescent on both surfaces, the margin ciliate toward the base; panicles 6–8 cm. long, about three fourths as wide, rather numerously flowered, the flexuous branches ascending or later spreading; spikelets 2 mm. long, 0.9 mm. wide, elliptic, blunt; first glume one fourth to one third the length of the spikelet, obtuse; second glume and sterile lemma pubescent, the glume slightly shorter; fruit 1.8–1.9 mm. long, 0.9 mm. wide, elliptic.

Autumnal phase erect, bearing in late summer a few short, erect branches at the upper nodes; soon dying to the ground.

TYPE LOCALITY: Washington, District of Columbia.
DISTRIBUTION: New Jersey to Missouri and Alabama.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 183*; Britt. & Brown, Ill. Fl. ed. 2. *f. 349*.

118. **Panicum mattamuskeetense** Ashe, Jour. Elisha Mitchell Soc. **15**: 45. 1898.

Panicum flexuosum Muhl.; Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 3, as synonym. 1900. Not *P. flexuosum* Retz. 1791.

Vernal phase in clumps of few to several culms, olivaceous, usually strongly tinged with deep purple; culms stout, erect or subgeniculate at base, the nodes bearded or the upper puberulent only; leaf-sheaths less than half the length of the internodes, pilose on the margin, a puberulent ring at the summit, the auricles pilose, the lower sheaths velvety-pilose, the upper glabrous or velvety; ligule dense, 0.7 mm. long; blades horizontally spreading, 8–12 cm. long, 8–12 mm. wide (basal blades much shorter), acuminate, narrowed toward the base, the lower velvety, the upper glabrous, on both surfaces; panicles long-exserted at maturity, 8–10 mm., rarely 12 mm. long, about three fourths as wide, many-flowered, the flexuous branches spreading, with short spikelet-bearing branchlets in the axils; spikelets 2.3–2.5 mm. long (rarely 2.7 mm. long), 1.1 mm. wide, elliptic, pointed before maturity, pubescent; first glume about one third the length of the spikelet, subacute; second glume and sterile lemma subequal, barely covering the fruit at maturity; fruit 2 mm. long, 1 mm. wide, elliptic.

Autumnal phase erect or becoming somewhat decumbent, branching rather sparingly from the middle nodes after the maturity of the primary panicles, the branches rather appressed, the reduced crowded blades ascending.

TYPE LOCALITY: Lake Mattamuskeet, North Carolina.
DISTRIBUTION: New York to North Carolina.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 185*; Britt. & Brown, Ill. Fl. ed. 2. *f. 351*.

119. **Panicum Clutei** Nash, Bull. Torrey Club **26**: 569. 1899.

Vernal phase similar in color, size, and habit to that of *P. mattamuskeetense*, but more nearly glabrous, only the lowermost nodes, leaf-sheaths, and blades velvety, the puberulent ring at the summit of the sheath less dense or wanting; panicles similar, on the average smaller; spikelets 2.2–2.3 mm. long, 1 mm. wide, indistinguishable from the smaller spikelets of *P. mattamuskeetense;* fruit the same size and shape.

Autumnal phase stiffly erect, branching from the lower and middle nodes before the maturity of the primary panicles, the earlier branches nearly equaling the primary culms, the later branches shorter, somewhat crowded, the reduced blades spreading.

TYPE LOCALITY: Southern New Jersey.
DISTRIBUTION: Massachusetts to North Carolina.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 187*.

120. **Panicum boreale** Nash, Bull. Torrey Club **22**: 421. 1895.

Vernal phase cespitose; culms erect, or in shaded places sometimes decumbent at base, usually 30–50 cm. high, the nodes glabrous or sometimes with a few hairs; leaf-sheaths often

overlapping, ciliate on the margin, glabrous, or the lower sparsely pubescent; blades erect, or in laxer forms spreading, sparsely ciliate at the rounded base, otherwise glabrous, 6–12 cm. long, 7–12 mm. wide; panicles loosely rather few-flowered, 5–10 cm. long, hardly as wide, the branches ascending or spreading; spikelets 2–2.2 mm. long, 1 mm. wide, elliptic, subacute, pubescent; first glume one third as long as the spikelet or less; second glume and sterile lemma subequal, the glume scarcely as long as the fruit at maturity; fruit 1.9 mm. long, 1 mm. wide, elliptic, subacute.

Autumnal phase erect, sparingly branched from all the nodes in late summer, the branches erect, the leaves and panicles not greatly reduced.

TYPE LOCALITY: Cairo, New York.
DISTRIBUTION: Newfoundland to New Jersey, and west to Minnesota.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 58*; Contr. U. S. Nat. Herb. **15**: *f. 189*; Britt. & Brown, Ill. Fl. *f. 261*; ed. 2. *f. 350*.

121. **Panicum dichotomum** L. Sp. Pl. 58. 1753.

Panicum angustifolium LeConte; Torr. Cat. Pl. N. Y. 91. 1819. Not *P. angustifolium* Ell. 1816.
Panicum tremulum Spreng. Neue Entdeck. **2**: 103. 1821.
Panicum dichotomum viride Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 30. 1889.
Panicum dichotomum divaricatum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 30. 1889.
Panicum nitidum pauciflorum Britton, Trans. N. Y. Acad. Sci. **9**: 14. 1889.
Panicum nitidum viride Britton, Trans. N. Y. Acad. Sci. **9**: 14. 1889.
Panicum dichotomum commune Wats. & Coult. in A. Gray, Man. ed. 6. 633. 1890.
Panicum ramulosum viride Porter, Bull. Torrey Club **20**: 194. 1893.
Chasea dichotoma Nieuwl. Am. Midl. Nat. **2**: 64. 1911.

Vernal phase often purplish; culms 30–50 cm. high, erect, from a knotted crown, the nodes naked or the lower with a few spreading hairs; leaf-sheaths less than half the length of the internodes, sometimes ciliate on the margin, otherwise glabrous, or the lowermost rarely sparingly pubescent; blades spreading, 5–11 cm. long, 4–8 mm. wide, acuminate, slightly narrowed toward the base, glabrous on both surfaces, sometimes with a few long hairs on the margin at the base, the basal blades lanceolate-ovate, long-ciliate on the margin near the base; panicles long-exserted, 4–9 cm. long, the axis and spreading branches flexuous, spikelet-bearing toward the ends; spikelets 2 mm. long, 0.9 mm. wide, elliptic, glabrous or rarely pubescent; first glume one third length of spikelet, subacute; seocnd glume and sterile lemma rather faintly nerved, the glume shorter than the fruit at maturity; fruit 1.8 mm. long, 0.9 mm. wide, elliptic.

Autumnal culms much branched at the middle nodes, the lower portion usually erect and devoid of blades, thus giving the plants the appearance of diminutive trees as described by Gronovius and Linnaeus; blades much reduced and very numerous, often involute.

TYPE LOCALITY: Virginia.
DISTRIBUTION: New Brunswick to Michigan, and south to Florida and eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 366*; Contr. U. S. Nat. Herb. **15**: *f. 191*; Britt. & Brown, Ill. Fl. *f. 264*; ed. 2. *f. 345*.

122. **Panicum barbulatum** Michx. Fl. Bor. Am. **1**: 49. 1803.

Panicum dichotomum barbulatum Wood, Class-Book ed. 1861. 786. 1861.
Panicum pubescens barbulatum Britton, Cat. Pl. N. J. 280. 1890.
Panicum nitidum barbulatum Chapm. Fl. S. U. S. ed. 3. 586. 1897.
Panicum gravius Hitchc. & Chase; Hitchc. Rhodora **8**: 205. 1906.

Vernal phase in large tufts; culms slender, 50–80 cm. high, erect, or spreading at the summit; lower nodes usually bearded; leaf-sheaths glabrous except a puberulent ring at the summit, the lower usually softly pubescent; blades spreading, 6–10 cm. long, 6–10 mm. wide (the lower shorter), acuminate, rounded at the base, glabrous, the lower rarely puberulent; panicles long-exserted, 6–11 cm. long, as wide or wider, the slender, flexuous branches fascicled, the lower spreading or drooping at maturity, spikelet-bearing at the ends; spikelets oval, 2 mm. long, 1 mm. wide, glabrous; first glume one fourth to one third as long as the spikelet, acute; second glume and sterile lemma equal, covering the fruit at maturity; fruit elliptic, 1.8 mm. long, 1 mm. wide, obscurely apiculate.

Autumnal phase diffusely branched, forming very large, topheavy reclining bunches, the slender branchlets recurved, the numerous flat blades horizontally spreading.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Massachusetts to Michigan, and south to Georgia and eastern Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 193*.

123. **Panicum yadkinense** Ashe, Jour. Elisha Mitchell Soc. **16**: 85. 1900.

? *Panicum dichotomum curvatum* Torr. Fl. U. S. 145. 1824.
? *Panicum Dumus* Desv. Opusc. 88. 1831.
Panicum maculatum Ashe, Jour. Elisha Mitchell Soc. **15**: 44. 1898. Not *P. maculatum* Aubl. 1775.

Vernal phase similar to that of *P. dichotomum,* but culms taller and stouter, sometimes 1 meter high; leaf-sheaths usually bearing pale, glandular spots; blades 9–13 cm. long, 8–11 mm. wide; panicles about 10–12 cm. long, about three fourths as wide, the long lower branches ascending; spikelets 2.3–2.5 mm. long, 1 mm. wide, elliptic to subfusiform, pointed, glabrous; first glume about one third the length of the spikelet, usually blunt; second glume and sterile lemma rather faintly nerved, equal, exceeding the fruit and forming a slight point beyond it; fruit 1.9 mm. long, 0.9 mm. wide, elliptic, subobtuse.

Autumnal phase erect or leaning, loosely branching from the middle nodes, the blades smaller but not conspicuously reduced.

TYPE LOCALITY: Raleigh, North Carolina.
DISTRIBUTION: Pennsylvania to Illinois, and south to Georgia and Louisiana; southern Mexico.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 195*; Britt. & Brown, Ill. Fl. ed. 2. *f. 347*.

124. **Panicum roanokense** Ashe, Jour. Elisha Mitchell Soc. **15**: 44. 1898.

Panicum curtivaginum Ashe, Jour. Elisha Mitchell Soc. **16**: 85. 1900.

Vernal phase cespitose, somewhat glaucous olive-green; culms erect or ascending, 50–100 cm. high; leaf-sheaths half as long as the internodes or less, glabrous, or the lowermost sometimes sparsely pubescent; blades at first stiffly erect, later ascending or spreading, 6–9 cm. long, 3–8 mm. wide, tapering to both ends, glabrous or with a few hairs around the base; panicles 4–8 cm. long, scarcely as wide, the branches spreading; spikelets 2 mm. long, 1 mm. wide, ellipsoid-obovoid, very turgid, glabrous; first glume about one third the length of the spikelet; second glume and sterile lemma strongly nerved, subequal, the glume rather conspicuously purple-tinged at base, scarcely covering the fruit at maturity; fruit 1.6 mm. long, 0.9 mm. wide, ellipsoid.

Autumnal phase erect or decumbent, branching at the mid dle andupper nodes, the branches numerous but not in tufts, the primary internodes elongating and becoming arched about the time the branches appear, the reduced blades more or less involute, not exceeding the 1.5–4 cm. long panicles; basal blades firm, erect, often as much as 5 or 6 cm. long.

TYPE LOCALITY: Roanoke Island, North Carolina.
DISTRIBUTION: Virginia to Florida, and west to eastern Texas; Jamaica.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 197*.

125. **Panicum caerulescens** Hack.; Hitchc. Contr. U. S. Nat. Herb. **12**: 219. 1909.

Vernal phase similar to that of *P. roanokense;* culms more slender, rarely more than 75 cm. high; blades ascending or spreading, commonly purplish beneath, 5–8 cm. long, 4–7 mm. wide, the margins nearly parallel for two thirds their length; panicles usually short-exserted, 3–7 cm. long, half as wide or less, the branches narrowly ascending; spikelets 1.5–1.6 mm. long, 0.9 mm. wide, obovoid, blunt, very turgid, glabrous; first glume about one third the length of the spikelets; second glume and sterile lemma subequal, the glume scarcely as long as the fruit at maturity; fruit 1.4 mm. long, 0.8 mm. wide, ellipsoid.

Autumnal phase erect or leaning, sometimes decumbent at base, producing short, densely fascicled branches at the middle and upper nodes, these tufts scarcely as long as the primary internodes, the reduced blades ascending, more or less involute, the reduced panicles with a few long-pediceled spikelets.

TYPE LOCALITY: Miami, Florida.
DISTRIBUTION: New Jersey to Florida, and west to southern Mississippi; Bahamas; Cuba.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 199*.

126. **Panicum lucidum** Ashe, Jour. Elisha Mitchell Soc. **15**: 47. 1898.

?*Panicum dichotomum gracile* Torr. Fl. U. S. 145. 1824.
Panicum taxodiorum Ashe, Jour. Elisha Mitchell Soc. **16**: 91. 1900.

Vernal phase at first erect and resembling that of *P. dichotomum*, but the weak culms soon becoming decumbent, sometimes rooting at the lower nodes; leaf-sheaths glabrous, usually ciliate on the margin; blades thin, bright-green, shining, glabrous, at first erect, but soon widely spreading, 4–7 cm. long, 4–6 mm. wide; panicles resembling those of *P. dichotomum* but fewer-flowered; spikelets 2–2.1 mm. long, 1 mm. wide, elliptic, glabrous (rarely obscurely pubescent); first glume about two fifths the length of the spikelet, pointed; second glume and sterile lemma more strongly nerved than in *P. dichotomum*, both shorter than the fruit at maturity; fruit 1.7 mm. long, 0.9 mm. wide, slightly pointed.

Autumnal phase repeatedly branching, forming large clumps or mats of slender, weak, vine-like culms, the branches elongate and diverging at a wide angle, not fascicled, the blades 2–4 cm. long, waxy, flat and spreading; panicles much reduced, with few long-pediceled spikelets; basal blades linear-oblong, as much as 10 cm. long.

TYPE LOCALITY: Lake Mattamuskeet, North Carolina.
DISTRIBUTION: New York to Florida, and west to eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 363*; Contr. U. S. Nat. Herb. **15**: *f. 201*; Britt. & Brown, Ill. Fl. ed. 2. *f. 346*.

127. **Panicum sphagnicola** Nash, Bull. Torrey Club **22**: 422. 1895.

Vernal phase grayish olive-green, cespitose; culms slender, strongly flattened, erect or reclining, 50–100 cm. high; leaf-sheaths glabrous or the lowermost sparsely papillose-pilose, soon becoming divaricate and enveloping the internodes only at base; blades at first erect, later widely spreading, glabrous, 5–8 cm. long, 3–7 mm. wide; panicles narrow, 5–6 cm. long, the branches ascending or somewhat spreading, not spikelet-bearing at the base; spikelets 2.5 mm. long, 1.1 mm. wide, elliptic; first glume nearly half the length of the spikelet, subacute; second glume and sterile lemma strongly nerved, minutely pubescent toward the summit or glabrous, the glume shorter than the fruit; fruit 2 mm. long, 1–1.1 mm. wide, elliptic, subobtuse.

Autumnal phase decumbent or finally prostrate-spreading, divaricately branching from all the nodes, the branches slender and elongate, sometimes rooting at the nodes; sheaths divaricately spreading from the stem, usually nearly as long as the blades; blades flat, reduced in length but not much in width, mostly 1–2 cm. long, or on the ultimate branchlets only 5 mm. long and 1 mm. wide; panicles rather few, reduced to a few short-pediceled spikelets; basal blades 4–8 cm. long, about 1 cm. wide, sometimes sparsely pilose at base.

TYPE LOCALITY: Lake City, Florida.
DISTRIBUTION: Georgia and Florida.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 362*; Contr. U. S. Nat. Herb. **15**: *f. 203*; Britt. & Brown, Ill. Fl. **3**: App. *f. 264b*.

128. **Panicum spretum** Schultes, in R. & S. Syst. Veg. Mant. **2**: 248. 1824.

Panicum nitidum densiflorum Rand & Redfield, Fl. Mt. Desert 174. 1894.
Panicum Eatoni Nash, Bull. Torrey Club **25**: 84. 1898.
Panicum octonodum J. G. Smith; Scribn. Bull. U. S. Dep. Agr. Agrost. **17**: 73. 1899.
Panicum paucipilum Nash, Bull. Torrey Club **26**: 573. 1899.
Panicum nitidum octonodum Scribn. & Merr. Bull. U. S. Dep. Agr. Agrost. **24**: 34. 1901.

Vernal culms tufted, 30–90 cm. high, erect or slightly decumbent at base, sometimes sending out rootlets from the lower nodes, glabrous, the nodes swollen; leaf-sheaths loose, shorter than the internodes, usually ciliate on the margin toward the summit, otherwise glabrous, or the lower sometimes slightly pubescent; ligule 2–3 mm. long; blades firm, ascending or often reflexed, 7–10 cm. long, 4–8 mm. wide, sparingly long-ciliate at the rounded base, otherwise glabrous; panicles 8–12 cm. long, one fourth to one third as wide, rather densely flowered, the branches ascending or appressed, with short spikelet-bearing branchlets in the axils; spikelets 1.4–1.6 mm. (usually 1.5 mm.) long, 0.7–0.9 mm. wide, elliptic, obscurely pointed; first glume one fourth to one third the length of the spikelet, obtuse or subacute; second glume and sterile lemma equaling the fruit at maturity, pubescent or rarely glabrous; fruit 1.3 mm. long, 0.7–0.8 mm. wide, elliptic, slightly pointed.

Autumnal phase more or less reclining, branching after the maturity of the primary panicle, the earlier branches elongate, ascending but not appressed, bearing exserted panicles, the subsequent branchlets in short fascicles, the blades much reduced, sometimes minutely pubescent, overtopping the small ultimate panicles; winter rosette appearing rather early, the blades glabrous or nearly so.

TYPE LOCALITY: New England.
DISTRIBUTION: Maine to Florida, and west to eastern Texas; northern Indiana.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 369, 371*; **24**: *f. 9, 10*; Contr. U. S. Nat. Herb. **15**: *f. 205*; Britt. & Brown, Ill. Fl. **3**: App. *f. 267c*; ed. 2. *f. 352, 353, 354.*
This species has often been referred to *Panicum nitidum* Lam. (see page 251).

129. **Panicum Lindheimeri** Nash, Bull. Torrey Club **24**: 196. 1897.

Panicum Funstoni Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **35**: 4. 1901.

Vernal culms stiffly ascending or spreading, 30–100 cm. high, glabrous, or the lower internodes ascending-pubescent, the nodes swollen; leaf-sheaths less than half as long as the elongate internodes, ciliate on the margin, otherwise glabrous, or the lower ascending-pubescent; ligule 4–5 mm. long; blades usually firm, 5–10 cm. long, 6–8 mm. wide, at first ascending, soon spreading, papillose-ciliate at the rounded base, glabrous on both surfaces, or minutely puberulent beneath; panicles 4–7 cm. long (rarely longer), nearly as wide, the branches ascending or spreading, loosely flowered; spikelets 1.4–1.6 mm. long, 0.8–0.9 mm. wide, obovate, obtuse, turgid, pubescent; first glume one fourth as long as the spikelet or less, usually obtuse; second glume and sterile lemma scarcely equaling the fruit at maturity; fruit 1.3–1.4 mm. long, 0.8 mm. wide, elliptic, obtuse.

Autumnal phase usually stiffly spreading or radiate-prostrate, the internodes elongate, with tufts of short, appressed branches at the nodes; blades reduced, involute-pointed and often conspicuously ciliate at base.

TYPE LOCALITY: New Braunfels, Texas.
DISTRIBUTION: Maine to Florida, and west to Minnesota and California.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 207*; Britt. & Brown, Ill. Fl. *f. 263* (as *P. nitidum*); ed. 2. *f. 355*.

130. **Panicum leucothrix** Nash, Bull. Torrey Club **24**: 41. 1897.

? *Panicum cartilagineum* Muhl. Descr. Gram. 128. 1817.
Panicum parvispiculum Nash, Bull. Torrey Club **24**: 347. 1897.

Vernal plants light olive-green, often purplish-tinged; culms tufted, 25–45 cm. high, erect or ascending, appressed papillose-pilose, the nodes scarcely swollen, pubescent; leaf-sheaths shorter than the internodes, papillose-pubescent, the hairs less appressed than those of the culm, rarely nearly glabrous, the margins ciliate, densely so at the summit; ligule 3 mm. long; blades rather firm, ascending or spreading, 3–7 cm. long, 3–7 mm. wide, rounded and papillose-ciliate at the base, glabrous or rarely sparsely villous on the upper surface, velvety-puberulent beneath; panicles long-exserted, 3–8 cm. long, about three fourths as wide, rather densely flowered, the axis appressed-pubescent, with tufts of long hairs in the axils, the branches ascending; spikelets 1.2–1.3 mm. long, 0.7 mm. wide, obovate-elliptic, densely papillose-pubescent; first glume about one fourth the length of the spikelet, obtuse; second glume and sterile lemma equaling the fruit but not exceeding it; fruit 1.1 mm. long, 0.6 mm. wide, elliptic, slightly pointed.

Autumnal phase ascending, usually decumbent at base, at first sending out from the lower and middle nodes long branches similar to the vernal culms, later producing appressed, more or less fascicled branchlets, the flat or somewhat involute blades not greatly reduced.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: New Jersey to Florida, and west to Louisiana; Cuba and Porto Rico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 360*; Contr. U. S. Nat. Herb. **15**: *f. 209*; Britt. & Brown, Ill. Fl. ed. 2. *f. 356*.

131. **Panicum longiligulatum** Nash, Bull. Torrey Club **26**: 574. 1899.

Vernal culms usually stout, 30–70 cm. high, erect, or ascending at base, glabrous; leaf-sheaths glabrous, usually much shorter than the internodes; ligule 2–3 mm. long; blades rather

thick and firm, 4–8 cm. long, 4–8 mm. wide, glabrous on the upper surface, puberulent beneath, gradually narrowed to the sharp point, the lower ascending, the upper spreading or often reflexed; panicles ovoid, 3–8 cm. long, two thirds to three fourths as wide, rather densely flowered, the slender branches usually stiffly ascending, with short spikelet-bearing branchlets in the axils; spikelets 1.1–1.2 mm. long, 0.7 mm. wide, elliptic, pubescent; first glume one fourth as long as the spikelet; second glume slightly shorter than the fruit and sterile lemma; fruit 1 mm. long, 0.7 mm. wide, elliptic.

Autumnal culms more or less reclining, the branches spreading, usually somewhat recurved, with crowded branchlets and spreading, subinvolute, reduced blades about equaling the reduced panicles of few long-pediceled spikelets; winter rosette prominent, the blades glabrous.

TYPE LOCALITY: Apalachicola, Florida.
DISTRIBUTION: North Carolina to Florida, and west to Louisiana.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 211.*

132. **Panicum Wrightianum** Scribn. Bull. U. S. Dep. Agr. Agrost. **11**: 44. 1898.

Panicum strictum Bosc; R. & S. Syst. Veg. **2**: 447. 1817. Not *P. strictum* R. Br. 1810.
Panicum minutulum Desv. Opusc. 87. 1831. Not *P. minutulum* Gaud. 1826.
Panicum deminutivum Peck, Bull. N. Y. State Mus. 116: 27. 1907.

Vernal culms weak and slender, ascending from a decumbent base, or rarely at first erect, 15–40 cm., or rarely 60 cm., high, minutely puberulent; leaf-sheaths striate, shorter than the internodes, glabrous, except the summit and ciliate margin, or puberulent; ligule 2–3 mm. long; blades spreading, 2–4 cm. long, 3–5 mm., or rarely 6 mm. wide, glabrous or puberulent beneath and minutely pilose above; panicles oblong-ovate, 3–6 cm. long, one third to half as wide, the branches ascending, the minute spikelets long-pediceled; spikelets 0.95–1 mm. long, 0.5 mm. wide, ellipsoid, turgid, subacute, pubescent; first glume about one fourth as long as the spikelet; second glume shorter than the fruit and sterile lemma; fruit 0.8 mm. long, 0.5 mm. wide, subacute.

Autumnal phase decumbent-spreading, the culms sending out from the lower and middle nodes numerous ascending branches, becoming somewhat bushy-branched, the flat or subinvolute blades and secondary panicles not much reduced.

TYPE LOCALITY: Cuba.
DISTRIBUTION: Massachusetts to Florida, and west to eastern Texas; Cuba.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **11**: *f. 4*; **17**: *f. 357*; Contr. U. S. Nat. Herb. **15**: *f. 213.*

133. **Panicum meridionale** Ashe, Jour. Elisha Mitchell Soc. **15**: 59. 1898.

Panicum filiculme Ashe, Jour. Elisha Mitchell Soc. **15**: 59. 1898.
? *Panicum microphyllum* Ashe, Jour. Elisha Mitchell Soc. **15**: 61. 1898.
Panicum unciphyllum meridionale Scribn. & Merr. Rhodora **3**: 123. 1901.

Vernal phase tufted; culms 15–40 cm. high, pilose below, the upper portion and the axis of the panicle appressed-pubescent, or the latter often nearly glabrous; lower leaf-sheaths pilose, upper minutely appressed-pubescent; ligule 3–4 mm. long; blades 1.5–4 cm. long, 2–4 mm. wide, long-pilose on the upper surface, the hairs erect, less dense than in *P. implicatum;* panicles 1.5–4 cm. long, nearly or quite as wide, ovate or rhombic, the branches ascending; spikelets 1.3–1.4 mm. long, 0.8 mm. wide, obovate, obtuse, minutely papillose-pubescent; first glume one fourth to one third the length of the spikelet, acute or subacute; second glume and sterile lemma equal, as long as the fruit at maturity; fruit 1.2 mm. long, 0.8 mm. wide, broadly elliptic, obscurely pointed.

Autumnal phase erect or nearly so, with fascicled branchlets from all the nodes; leaves and panicles not greatly reduced, the latter included late in the season; winter leaves lanceolate, long-pilose toward the base, the rosette formed rather late.

TYPE LOCALITY: Chapel Hill, North Carolina.
DISTRIBUTION: Rhode Island to Wisconsin, and south to Alabama.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 215*; Britt. & Brown, Ill. Fl. ed. 2. *f. 362*.

134. **Panicum albemarlense** Ashe, Jour. Elisha Mitchell Soc. **16**: 84. 1900.

Panicum velutinum Bosc; Spreng. Syst. 1: 315, as synonym. 1825. Not *P. velutinum* G. Meyer, 1818.

Vernal phase olivaceous; culms cespitose, 25–45 cm. high, slender, at first erect or ascending, soon becoming geniculate at the lower nodes and more or less spreading; culms, leaf-sheaths, and blades grayish-villous, the blades 4.5–7 cm. long, 3–6 mm. wide, ascending, the upper surface puberulent as well as long-villous; panicles 3–5 cm. long, about as wide, more densely flowered than *P. meridionale*, the axis puberulent, the branches ascending; spikelets 1.4 mm. long, 0.9 mm. wide, blunt and turgid, pilose; first glume about two fifths the length of the spikelet; second glume and sterile lemma subequal, the glume scarcely equaling the fruit at maturity; fruit 1.25 mm. long, 0.9 mm. wide, obtuse.

Autumnal phase widely decumbent-spreading or ascending, freely branching at all but the uppermost nodes, the branches narrowly ascending, the reduced, flat blades mostly exceeding the panicles.

TYPE LOCALITY: Scranton, North Carolina.
DISTRIBUTION: Connecticut to North Carolina; around the southern end of Lake Michigan.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 217*.

135. **Panicum implicatum** Scribn. Bull. U. S. Dep. Agr. Agrost. **11**: 43. 1898.

Panicum unciphyllum implicatum Scribn. & Merr. Rhodora **3**: 123. 1901.

Vernal phase with tufted, slender culms 20–55 cm. high, erect or ascending, papillose-pilose with spreading hairs; leaf-sheaths shorter than the internodes, papillose-pilose; ligule 4–5 mm. long; blades firm, erect or ascending, 3–6 cm. long, 3–6 mm. wide, rarely longer or wider, more or less involute-acuminate, the upper surface pilose with erect hairs 3–4 mm. long, the lower surface papillose-pubescent with subappressed hairs; primary panicles long-exserted, pyramidal in outline, 3–6 cm. long, about as wide, the axis long-pilose, the branches flexuous, in typical specimens tangled and the lower drooping; spikelets 1.5 mm. long, 0.9 mm. wide, obovate, obtuse, papillose-pilose; first glume about one fourth the length of the spikelet, obtuse; second glume and sterile lemma equaling the fruit at maturity; fruit 1.3 mm. long, 0.9 mm. wide, broadly elliptic, obtuse, very minutely umbonate.

Autumnal phase erect or spreading, rather loosely branching from the lower and middle nodes, the primary culms becoming more or less geniculate below; leaves and panicles reduced; winter leaves lanceolate-ovate, pilose above, the rosette appearing late.

TYPE LOCALITY: Cape Elizabeth, Maine.
DISTRIBUTION: Nova Scotia to Iowa.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **11**: *f. 2*; **17**: *f. 373*; Contr. U. S. Nat. Herb. **15**: *f. 219*; Britt. & Brown, Ill. Fl. **3**: App. *f. 267a*; ed. 2. *f. 361*.

136. **Panicum Huachucae** Ashe, Jour. Elisha Mitchell Soc. **15**: 51. 1898.

Panicum nitidum pilosum Torr. Fl. U. S. 146. 1824. Not *P. pilosum* Sw. 1788.
? *Panicum iowense* Ashe, Bull. N. Car. Exp. Sta. **175**: 175. 1900.
Panicum lanuginosum Huachucae Hitchc. Rhodora **8**: 208. 1906.

Vernal phase cespitose, usually stiffly upright, light-olivaceous, often purplish, harsh to the touch from the copious, spreading, papillose pubescence of culms and leaves; culms 20–60 cm. high; nodes bearded with spreading hairs; leaf-sheaths shorter than the internodes; ligule 3–4 mm. long; blades firm, stiffly erect or ascending, 4–8 cm. long, 6–8 mm. wide, the veins inconspicuous, the upper surface copiously short-pilose, especially toward the base, the lower surface densely pubescent; panicles rather short-exserted until maturity, 4–6 cm. long, nearly as wide, rather densely flowered, the axis and often the branches pilose, the flexuous, fascicled branches ascending or spreading, with short spikelet-bearing branchlets at base of the fascicles; spikelets 1.6–1.8 mm. long, 1 mm. wide, obovate, obtuse, turgid, papillose-pubescent; first glume about one third the length of the spikelet; second glume and sterile lemma subequal, scarcely covering the fruit at maturity; fruit 1.5–1.6 mm. long, 1 mm. wide, elliptic, obscurely apiculate.

Autumnal phase stiffly erect or ascending, the culms and sheaths sometimes papillose only, the branches fascicled, the reduced, crowded leaves ascending, the blades 2–3 cm. long, much exceeding the reduced panicles.

TYPE LOCALITY: Huachuca Mountains, Arizona.
DISTRIBUTION: Maine to South Dakota, and south to North Carolina and Arizona.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 221.*

Panicum Huachucae silvicola Hitchc. & Chase; B. L. Robinson, Rhodora **10**: 64. 1908. *Panicum dichotomum fasciculatum* Torr. Fl. U. S. 145. 1824. Not *P. fasciculatum* Sw. 1788. *Panicum nitidum ciliatum* Torr. Fl. U. S. 146. 1824. Not *P. ciliatum* Ell. 1816. Vernal phase taller and more slender, brighter green and less densely pubescent, the blades thin, lax and spreading. Some forms with the upper surface of the blades nearly or quite pubescent approach *Panicum tennesseense.* Maine to Nebraska, south to Florida and Arizona; originally described from the District of Columbia. ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 223.*

137. **Panicum tennesseense** Ashe, Jour. Elisha Mitchell Soc. **15**: 52. 1898.

Vernal phase suberect or stiffly spreading, bluish-green, often purplish; culms 25–60 cm. high, slender, papillose-pilose, or the upper portion glabrous; leaf-sheaths spreading-pubescent, rarely nearly glabrous; ligule dense, 4–5 mm. long; blades firm with a thin white cartilaginous margin, ascending or suberect, 6–9 cm. long, 5–8 mm., rarely 10 mm. wide (the upper smaller), often sparsely ciliate at base, the veins usually conspicuous. the upper surface glabrous or with a few long, scattered hairs toward the base, the lower surface appressed-pubescent or nearly glabrous; panicles 4–7 cm. long, nearly as wide, rather densely flowered, the lower branches ascending; spikelets 1.6–1.7 mm. long, 0.8–1 mm. wide, obovate-obtuse, turgid, pubescent; first glume about one fourth the length of the spikelet; second glume shorter than the sterile lemma, leaving the summit of the fruit exposed at maturity; fruit 1.4 mm. long, 0.8 mm. wide, elliptic, obtuse.

Autumnal phase widely spreading or decumbent, with numerous fascicled, somewhat flabellate, branches, often forming prostrate mats; leaves much reduced, the blades usually ciliate at base; winter rosette formed early.

TYPE LOCALITY: La Vergne County, Tennessee.
DISTRIBUTION: Maine to Minnesota, and south to Alabama and Arizona; Vera Cruz.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 225*; Britt. & Brown, Ill. Fl. ed. 2. *f. 364.*

138. **Panicum lanuginosum** Ell. Bot. S. C. & Ga. **1**: 123. 1816.

Panicum dichotomum lanuginosum Wood, Class Book ed. 1861. 786. 1861.
Panicum orangense Ashe, Jour. Elisha Mitchell Soc. **15**: 113. 1899.
Panicum ciliosum Nash, Bull. Torrey Club **26**: 568. 1899.

Vernal phase grayish olive-green, velvety to the touch; culms tufted, usually in large clumps, 40–70 cm. long, slender, lax, spreading, densely villous with fine, soft hairs arising from small papillae; nodes villous, often a glabrous ring below; leaf-sheaths shorter than the internodes, soft-villous like the culm, or the upper puberulent only, ciliate on the margin; ligule 3–4 mm. long; blades thickish but not stiff, ascending or spreading, somewhat incurved or spoon-shaped, 5–10 cm. long, 5–10 mm. wide (the uppermost much smaller), acuminate, narrowed toward the rounded base, the margins sometimes papillose-ciliate, the upper surface clothed with short soft hairs with long soft hairs intermixed, especially toward the margins and base, the lower surface densely velvety-pubescent; panicles exserted, 6–12 cm. long, about as wide, loosely flowered, the axis pubescent, the slender flexuous branches spreading or ascending, the lower often drooping; spikelets 1.8–1.9 mm. long, 1 mm. wide, obovate-elliptic, subobtuse, pubescent; first glume one third the length of the spikelet, obtuse or obscurely pointed; second glume and sterile lemma equal, slightly shorter than the fruit at maturity; fruit 1.6 mm. long, 0.9 mm. wide, elliptic, subacute.

Autumnal phase widely spreading or decumbent, freely branching from the middle nodes, the branches repeatedly branching and much exceeding the internodes, the ultimate branchlets forming flabellate fascicles; leaves and panicles much reduced, the flat blades almost always ciliate and exceeding the panicles; winter rosette not appearing until late, the blades 4–5 cm. long, usually ciliate, otherwise minutely velvety or nearly glabrous.

TYPE LOCALITY: Georgia.
DISTRIBUTION: New Jersey to Florida, and west to eastern Texas.
ILLUSTRATIONS: Circ. U. S. Dep. Agr. Agrost. **29**: *f. 3*; Contr. U. S. Nat. Herb. **15**: *f. 227*; Britt. & Brown, Ill. Fl. **3**: App. *f. 266a*; ed. 2. *f. 365.*

139. **Panicum acuminatum** Sw. Prodr. 23. 1788.

Panicum ornatum Desv.; Hamilt. Prodr. 11. 1825.
Panicum dichotomum acuminatum Sw.; Griseb. Fl. Brit. W. Ind. 553. 1864.
Panicum comophyllum Nash, Bull. Torrey Club **30**: 380. 1903.

Vernal culms leafy, ascending from a geniculate base, 20–70 cm. high, densely villous with soft, spreading hairs, rarely glabrate above, the nodes more or less bearded; leaf-sheaths velvety papillose-villous or the upper glabrate; ligule 2–3 mm. long; blades ascending or spreading, 4–8 cm. long, 6–13 mm. wide, lanceolate, slightly cordate at base, sharply acuminate, usually ciliate, the lower surface velvety papillose-puberulent, the upper surface from appressed papillose-pubescent to long-villous, or nearly glabrous except for long hairs near the base or margin; panicles 3–10 cm. long, about as wide, the axis usually villous, the branches flexuous, the lower spreading or even reflexed; spikelets 1.8–1.9 mm. long, 0.9 mm. wide, obovate, turgid, abruptly subacute, pilose; first glume about one third the length of the spikelet, subacute; second glume and sterile lemma barely equaling the fruit at maturity; fruit 1.3–1.4 mm. long, 0.9 mm. wide, elliptic, abruptly acute.

Autumnal phase appearing early, the primary culms branching at all but the uppermost nodes before the maturity of the primary panicles, these branches often exceeding the culm, more or less zigzag, repeatedly branching, the ultimate branchlets in dense, short, flabellate fascicles, the reduced blades flat or involute-pointed, the long hairs on the margins and upper surface usually conspicuous.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: West Indies; also in Colombia.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 229*.

140. **Panicum auburne** Ashe, Bull. N. Car. Exp. Sta. 175: 115. 1900.

Vernal phase grayish velvety-villous throughout; culms tufted, 20–50 cm. high, geniculate at base, widely spreading, soon becoming branched and decumbent, rather slender, densely papillose-silky-villous below, velvety with copious silky hairs intermixed above; leaf-sheaths usually about half the length of the internodes, villous like the culms; ligule 3–4 mm. long; blades rather thin, ascending, 3–7 cm. long, 3–5 mm. wide, acuminate, slightly narrowed toward the base, the upper surface velvety with copious long, silky hairs intermixed, especially toward the base, the lower surface silky-villous or velvety, the nerves somewhat conspicuous; panicles short-exserted, 3–5 cm. long, about as wide, the axis velvety, with long, silky hairs intermixed, the flexuous branches ascending or spreading; spikelets 1.3–1.4 mm. long, 0.8–0.9 mm. wide, obovate, very turgid, densely papillose-pubescent; first glume one third to half the length of the spikelet, acute; second glume and sterile lemma equal and covering the fruit at maturity; fruit 1.1–1.2 mm. long, 0.8 mm. wide, obovate-elliptic, minutely pointed.

Autumnal phase early becoming diffusely branched at all the nodes, prostrate-spreading, forming large mats, the branches curved upward at the ends; earlier branches longer than the primary internodes, the ultimate branchlets in short fascicles with involute-pointed blades 1–2 cm. long, the numerous turgid little spikelets clustered at their bases; winter rosette appearing rather late, the lanceolate blades silky-villous like those of the primary culm.

TYPE LOCALITY: Auburn, Alabama.
DISTRIBUTION: Virginia to Florida, and west to Louisiana.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 230*.

141. **Panicum Thurowii** Scribn. & Smith; Scribn. Circ. U. S. Dep. Agr. Agrost. **16**: 5. 1899.

Vernal form bluish-green, but drying olive; culms tufted, 35–70 cm. high, erect or ascending, villous, the nodes bearded with spreading hairs, usually a glabrous ring below; leaf-sheaths long, the lower often overlapping, the upper shorter than the internodes, sparsely or rather densely villous; ligule 4 mm. long; blades rather stiff, ascending or spreading, 7–12 cm. long, or the uppermost only 2–3 cm. long, 6–10 mm. wide, acuminate, often somewhat involute toward the apex, narrowed toward the rounded base, the upper surface sparingly pilose toward

the base and margins, the lower surface densely velvety-villous; panicles short-exserted, 7–11 cm. long, nearly as wide, rather densely flowered, the axis sparingly villous near the base, the branches spreading; spikelets 2 mm. long, 1 mm. wide, elliptic, somewhat obovate at maturity, obtuse, pubescent with soft, spreading hairs; first glume one fifth the length of the spikelet, obtuse or obscurely pointed; second glume and sterile lemma equal, scarcely equaling the fruit at maturity, obtuse or slightly pointed; fruit 1.7 mm. long, 1 mm. wide, elliptic, subacute.

Autumnal form erect, after the maturity of the primary panicle bearing at the middle nodes a few appressed or ascending fascicled branches scarcely longer than the primary internodes, the reduced blades flat or somewhat involute at the tips, ciliate.

TYPE LOCALITY: Waller County, Texas.
DISTRIBUTION: Southern Alabama to eastern Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 232.*

142. **Panicum olivaceum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 225. 1910.

Vernal culms olive-green, erect or somewhat spreading at base, 20–40 cm. high, velvety-villous with short hairs, the nodes bearded; leaf-sheaths villous like the culm, mostly shorter than the internodes; ligule 3–4 mm. long; blades rather stiffly erect or ascending or some of the lower spreading, 4–7 cm. long, 5–8 mm. wide (the uppermost erect, 1–3 cm. long), puberulent on both surfaces, also more or less short-villous above, and often with longer villous hairs toward the base; panicles 3–7 cm. long, ovate, the flexuous branches spreading, with short spikelet-bearing branchlets in the axils; spikelets 1.9–2 mm. long, 1 mm. wide, obovate, subacute, papillose-pilose; first glume one fourth to one third the length of the spikelet, usually pointed; second glume scarcely equaling the fruit and sterile lemma; fruit 1.6 mm. long, 1 mm. wide, subacute.

Autumnal phase upright or becoming decumbent-spreading, freely branching from the lower and middle nodes before the maturity of the primary panicle, the reduced branches appressed, or in the decumbent culms curved upward; blades reduced, flat, 1–2 cm. long, 2–4 mm. wide, usually conspicuously ciliate.

TYPE LOCALITY: Coban, Guatemala.
DISTRIBUTION: Mexico to Venezuela.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 234.*

143. **Panicum praecocius** Hitchc. & Chase; Hitchc. Rhodora **8**: 206. 1906.

Vernal culms tufted, 15–25 cm. high, early branching and elongating, sometimes to 45 cm., at first erect, soon becoming geniculate and spreading, very slender, wiry, abundantly papillose-pilose with weak spreading hairs 3–4 mm. long; leaf-sheaths, even the lowest, much shorter than the very long internodes, those of the branches usually but 1–2 cm. long, pilose like the culm, more prominently papillose; ligule 3–4 mm. long; blades rather firm, erect or ascending, 5–9 cm. long, 4–6 mm. wide, the margins parallel about two thirds their length, acuminate, long-pilose on both surfaces, the hairs of the upper surface 4–5 mm. long, erect from the plane of the blade, the under surface prominently papillose; panicles at first usually overtopped by the upper leaf, but at or past maturity exserted, 4–6 cm. long, about as wide, loosely flowered, the axis pilose, the branches flexuous, spreading or ascending; spikelets 1.8–1.9 mm. long, 1 mm. wide, obovate, turgid, obtuse, pilose; first glume one third to half the length of the spikelet, triangular; second glume and sterile lemma subequal, the glume slightly shorter than the fruit at maturity; fruit 1.6 mm. long, 1 mm. wide, broadly elliptic.

Autumnal phase ascending from a geniculate base, or in prairie sod erect, forming close bunches 10–20 cm. high, the upper portion of the primary culms early deciduous, the branches appressed, the scarcely reduced blades erect or narrowly ascending, much exceeding the reduced panicles; winter rosette appearing late, the blades 2–3 cm. long, long-pilose.

TYPE LOCALITY: Wady Petra, Illinois.
DISTRIBUTION: Michigan to Minnesota and eastern Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 235*; Britt. & Brown, Ill. Fl. ed. 2. *f. 360.*

144. **Panicum subvillosum** Ashe, Jour. Elisha Mitchell Soc. **16**: 86. 1900.

Panicum unciphyllum f. *pilosum* Scribn. & Merr. Rhodora **3**: 124. 1901. Not *P. pilosum* Sw. 1788.

Vernal culms tufted, 10–45 cm. high, slender, ascending or spreading, pilose with ascending hairs, usually faintly papillose, the lower internodes short, thus making the plant more leafy below, the nodes short-bearded; leaf-sheaths sparsely pilose with ascending hairs, the lower overlapping, the upper much shorter than the long internodes; ligule 3 mm. long; blades rather firm, ascending, 4–6 cm. long, 4–6 mm. wide, rarely wider, acuminate, slightly narrowed toward the base, both surfaces pilose, the hairs on the upper surface 3–5 mm. long, shorter on the lower; panicles long-exserted, ovate to oblong in outline, 3–5 cm. long, two thirds to three fourths as wide, rather densely flowered, the axis pubescent or toward the base pilose, the lower branches ascending; spikelets 1.8–1.9 mm. long, 0.9 mm. wide, elliptic, obtuse, pubescent; first glume nearly or quite half the length of the spikelet, acuminate; second glume scarcely equaling the the fruit at maturity; fruit 1.5 mm. long, 0.8 mm. wide, elliptic, obtuse.

Autumnal phase widely spreading, sparingly branching from the lower nodes, the leaves and panicles not greatly reduced, the panicles overtopped by the leaves, these less copiously pilose.

TYPE LOCALITY: Carlton, Minnesota.
DISTRIBUTION: Nova Scotia to Minnesota, and south to Connecticut and northern Indiana.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 237*.

145. **Panicum occidentale** Scribn. Rep. Mo. Bot. Gard. **10**: 48. 1899.

Vernal phase tufted, yellowish-green; culms slender, 15–40 cm. high, rarely higher, spreading, the lower internodes usually short, as in *P. subvillosum*, producing a leafy base as in that species, sparsely papillose-pubescent, the upper more or less elongate, glabrate, the nodes pubescent; leaf-sheaths rather sparsely papillose-pubescent, rarely almost glabrous; ligule 3–4 mm. long; blades firm, erect or ascending, 4–8 cm. long, 5–7 mm. wide, acuminate, rounded at the base, the upper surface with a few long hairs toward the base and margin, otherwise glabrous, the under surface appressed-pubescent; panicles long-exserted, 4–7 cm. long, about two thirds as wide, rather loosely flowered, the flexuous branches ascending or spreading; spikelets 1.8 mm. long, 1 mm. wide, elliptic-obovate, subacute, pubescent; first glume one fourth the length of the spikelet or less, obtuse or pointed; second glume and sterile lemma as long as the fruit at maturity; fruit 1.6 mm. long, 0.9 mm. wide, elliptic, subacute.

Autumnal phase branching from the lower nodes, forming a spreading bunch or tussock, 10–15 cm. high; leaves and panicles reduced; winter rosette appearing late, the blades narrowly lanceolate, glabrous or pilose at base.

TYPE LOCALITY: Nootka Sound, Vancouver Island.
DISTRIBUTION: British Columbia and Idaho to southern California.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 239*.

146. **Panicum pacificum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 229. 1910.

Vernal phase light-green; culms tufted, 25–50 cm. high, ascending or spreading, leafy (culm-leaves 5 or 6), papillose-pilose with spreading hairs, the nodes shortly spreading-pilose; leaf-sheaths papillose-pilose, the papillae prominent; ligule 3–4 mm. long; blades erect or ascending, 5–10 cm. long, 5–8 mm. wide, acuminate, narrowed toward the rounded base, the upper surface papillose-pilose, typically with short hairs intermixed, but these often wanting and the long hairs sometimes sparse, the lower surface appressed papillose-pubescent; panicles usually rather short-exserted, 5–10 cm. long, about three fourths as wide, the flexuous branches ascending; spikelets 1.8–2 mm. long, 1–1.1 mm. wide, obovate, obtuse, turgid, papillose-pubescent; first glume one fourth to one third the length of the spikelet, truncate; second glume and sterile lemma equaling the fruit at maturity; fruit 1.6 mm. long, 1 mm. wide, elliptic-obovate, obtuse or obscurely pointed.

Autumnal phase prostrate-spreading, repeatedly branching from the middle and upper

nodes after the maturity of the primary panicle, the reduced blades less pilose than the vernal ones, exceeding the reduced panicles; winter rosette appearing rather early, the blades only sparsely pubescent.

TYPE LOCALITY: Castle Crag, California.
DISTRIBUTION: British Columbia and Idaho to southern California and Arizona.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 241.*

147. **Panicum thermale** Bolander, Proc. Calif. Acad. **2**: 181. 1862.

Vernal culms grayish-green, densely tufted, velvety-villous, 10–30 cm. high, ascending or spreading, the nodes with a dense ring of short hairs; leaf-sheaths often overlapping, velvety-villous; ligule 3 mm. long; blades thick, ascending or spreading, 3–8 cm. (mostly about 5 cm.) long, 5–12 mm. wide, acuminate, rounded or subcordate at base, both surfaces densely velvety-villous; panicles exserted or at high altitudes partly included, 3–6 cm. long, about as wide, densely flowered, the axis villous, the flexuous branches spreading, often drooping; spikelets 1.9–2 mm. long, 1 mm. wide, obovate-oblong, obtuse, turgid, papillose-pilose; first glume about one third the length of the spikelet, obtuse or abruptly pointed; second glume and sterile lemma subequal, the glume shorter than the fruit at maturity; fruit 1.7 mm. long, 1 mm. wide, elliptic, subobtuse.

Autumnal phase widely spreading, the branches appearing even before the primary panicles are exserted, repeatedly branching, the whole forming a dense cushion, the blades and panicles of the ultimate branchlets reduced; winter rosette appearing early, the blades ovate-lanceolate, usually less pubescent than those of the culms.

TYPE LOCALITY: Sonoma County, California.
DISTRIBUTION: Alberta to Wyoming and California.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 243.*

148. **Panicum languidum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 232. 1910.

Panicum unciphyllum f. *prostratum* Scribn. & Merr. Rhodora **3**: 124. 1901. Not *P. prostratum* Lam. 1791.

Vernal phase tufted; culms 25–40 cm. high, weak, slender, ascending or spreading, pilose; leaf-sheaths shorter than the internodes, papillose-pilose; ligule about 3 mm. long; blades thin, lax, ascending or spreading, 4–7 cm. long, 4–9 mm. wide, acuminate, slightly narrowed to the rounded base, sparsely pilose on the upper surface, minutely appressed-pubescent beneath, usually with long hairs intermixed; panicles rather long-exserted, 3–6 cm. long, two thirds to three fourths as wide, loosely flowered, the very flexuous branches finally spreading or drooping, the spikelets on long, mostly divaricate, flexuous pedicels, the axis and branches sparsely long-pilose; spikelets 2 mm. long, 1 mm. wide, elliptic, acute, pilose; first glume about one third the length of the spikelet, obtuse or acute; second glume and sterile lemma exceeding the fruit and slightly pointed beyond it; fruit 1.5 mm. long, 1 mm. wide, obtuse.

Autumnal phase decumbent, with geniculate, sometimes rooting nodes, branching from all the nodes, the early branches nearly equaling the primary culm, repeatedly branching, forming a large, loose straggling clump, the ultimate blades and panicles scarcely reduced.

TYPE LOCALITY: South Berwick, Maine.
DISTRIBUTION: Maine, Massachusetts, and New York.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 245.*

149. **Panicum villosissimum** Nash, Bull. Torrey Club **23**: 149. 1896.

Panicum tectum Willd.; Spreng. Syst. **1**: 313, as synonym. 1825.
Panicum dichotomum villosum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 31. 1889. Not *P. villosum* Ell. 1816.
Panicum nitidum pubescens Scribn.; Kearney, Bull. Torrey Club **20**: 479, hyponym. 1893.
Panicum atlanticum Nash, Bull. Torrey Club **24**: 346. 1897.
Panicum haemacarpon Ashe, Jour. Elisha Mitchell Soc. **15**: 55. 1898.
Panicum xanthospermum Scribn. & Mohr; C. Mohr, Contr. U. S. Nat. Herb. **6**: 348. 1901.

Vernal plants light olive-green; culms densely tufted, 25–45 cm. high, slender, erect or ascending, papillose-pilose with spreading hairs 3 mm. long; leaf-sheaths shorter than the internodes, pilose like the culm; ligule 4–5 mm. long; blades rather firm, ascending or sometimes

spreading, 6–10 cm. long, 5–10 mm. wide, often subinvolute toward the acuminate apex, little narrowed toward the base, pilose on both surfaces, the hairs of the upper surface appressed, longer and less copious; panicles short-exserted, 4–8 cm. long, usually as wide, loosely flowered, the spikelets long-pediceled, the axis sparsely pilose, the branches rather stiffly ascending or spreading; spikelets 2.2–2.3 mm. long, 1.1 mm. wide, oblong-elliptic, obtuse or obscurely pointed, papillose-pubescent with spreading hairs; first glume sometimes glabrous, one third to nearly half the length of the spikelet, acute; second glume and sterile lemma subequal, the glume slightly shorter than the fruit at maturity; fruit 1.9 mm. long, 1 mm. wide, elliptic, subacute.

Autumnal phase at first decumbent, often with geniculate nodes and arched internodes, the first branches appearing at about the maturity of the primary panicle, late in the season prostrate, the leaves of the fascicled branchlets appressed, giving a combed-out appearance, a character conspicuous in the field but less so in the herbarium; blades not greatly reduced, often with only a few hairs on the upper surface, overtopping the much reduced panicles; winter rosette appearing rather early, the blades long, bluish-green, densely pilose.

TYPE LOCALITY: Ocmulgee River swamp, below Macon, Georgia.
DISTRIBUTION: Massachusetts to Minnesota, and south to Florida and eastern Texas; Guatemala.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 367* (as *P. pubescens*), *f. 372*; Contr. U. S. Nat. Herb. **15**: *f. 247*; Britt. & Brown, Ill. Fl. **3**: App. *f. 267f*; ed. 2. *f. 359*.

150. **Panicum pseudopubescens** Nash, Bull. Torrey Club **26**: 577. 1899.

Vernal phase similar to that of *P. villosissimum;* culms somewhat stiffer, the pubescence more silky, appressed on the culms, ascending on the leaf-sheaths; ligule 2–3 mm. long; blades somewhat firmer, the pubescence on the upper surface short like that on the lower and sparse or wanting down the center or the upper surface occasionally glabrous; panicles averaging larger, the spikelets not so long-pediceled; spikelets 2.25–2.4 mm. long, 1.1 mm. wide, obovate-elliptic, obtuse, or slightly pointed; the pubescence as in *P. villosissimum;* second glume slightly shorter than the fruit at maturity; fruit 1.9 mm. long, 1 mm. wide, elliptic, subacute.

Autumnal phase usually stiffly spreading, sometimes prostrate; culms sparingly branching from the lower and middle nodes after the maturity of the primary panicle, less freely branching than in *P. villosissimum;* upper surface of the reduced blades usually glabrous except along the margins and at the base; winter leaves as in *P. villosissimum*.

TYPE LOCALITY: Auburn, Alabama.
DISTRIBUTION: Connecticut to Illinois, and south to Florida and Mississippi; San Luis Potosí.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 249*.

151. **Panicum ovale** Ell. Bot. S. C. & Ga. **1**: 123. 1816.

Panicum ciliiferum Nash, Bull. Torrey Club **24**: 195. 1897.
Panicum erythrocarpon Ashe, Jour. Elisha Mitchell Soc. **16**: 90. 1900.

Vernal plants light olive-green; culms densely tufted, 20–50 cm. high, erect or ascending, rather stout, long-pilose below with ascending or appressed hairs, often nearly glabrous above, usually leafy at the base, the nodes densely bearded with short spreading hairs; leaf-sheaths shorter than the internodes or the lower overlapping, ascending-pilose, the upper less densely so, rarely nearly glabrous; ligule composed of a ring of hairs about 1 mm. long with a second sparse ring 2–3 mm. long above it; blades firm, ascending, 6–10 cm. long, 5–10 mm. wide (the uppermost much smaller), sharply acuminate, rounded at base, the upper surface usually nearly glabrous except for long hairs on or near the margin and base thus giving the blades the appearance of being strongly ciliate, these hairs occasionally wanting except at the base, the lower surface appressed-pubescent; panicles usually short-exserted, 5–9 cm. long, about as wide when fully expanded, the lower branches finally spreading, rarely drooping; spikelets 2.7–2.9 mm. long, 1.3 mm. wide, oblong-elliptic, obtuse, pilose, sometimes rather sparsely so; first glume one third to nearly half the length of the spikelet, usually pointed; second glume slightly shorter than the fruit and sterile lemma at maturity; fruit 2.2 mm. long, 1.2 mm. wide, elliptic, obtuse.

Autumnal phase spreading-decumbent, the stiff culms rather loosely branching from the middle and upper nodes, the ultimate branchlets crowded at the ends of the primary branches, the reduced blades erect; winter leaves very firm, conspicuously ciliate; short culms with tufted branches sometimes formed during the winter, the green bushy crown persistent at the base of the tall vernal culms.

TYPE LOCALITY: St. Marys, Georgia.
DISTRIBUTION: North Carolina to Florida and eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 382*; Contr. U. S. Nat. Herb. **15**: *f. 251*.

152. **Panicum scoparioides** Ashe, Jour. Elisha Mitchell Soc. **15**: 53. 1898.

Vernal plants light-green; culms few to several in a tuft, 30–50 cm. high, slender, erect or ascending, sparsely papillose-hispid with ascending hairs or nearly glabrous, the upper internodes shortened; nodes sometimes sparsely bearded; leaf-sheaths papillose-hispid to nearly glabrous, the lower distant, the upper approximate, sometimes overlapping; ligule 2–3 mm. long; blades firm, ascending, 7–10 cm. long, 6–10 mm. wide, tapering to the rounded base, acuminate, appressed-pubescent beneath, sparsely hispid on the upper surface, usually a few long hairs at the base; panicles short-exserted, usually included at the base until maturity, rather densely flowered, 4–7 cm. long, about two thirds as wide, the branches ascending; spikelets 2.2–2.3 mm. long, 1.2 mm. wide, obovate, obtuse or minutely pointed; first glume about one fourth as long as the spikelet, subacute; second glume and sterile lemma papillose-pubescent, strongly nerved, subequal, as long as the fruit, the margins at the summit usually inrolled, the midnerve produced into an apiculus; fruit 1.9 mm. long, 1.1 mm. wide, elliptic.

Autumnal phase erect or spreading; culms sparingly branching from the upper and middle nodes after the maturity of the primary panicle, the stiff, reduced blades involute-pointed, much exceeding the panicles.

TYPE LOCALITY: Centreville, Delaware.
DISTRIBUTION: Vermont to Delaware; Minnesota; Indiana.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 253*; Britt. & Brown, Ill. Fl. ed. 2. *f. 358*.

153. **Panicum shastense** Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **35**: 3. 1901.

Vernal phase pale-green; culms tufted, 30–50 cm. high, slender, ascending from a more or less geniculate base, papillose-pilose with ascending hairs; nodes short-bearded; leaf-sheaths papillose-pilose, the hairs spreading; hairs of the ligule rather sparse, 2–3 mm. long; blades ascending, 6–8 cm. long, 6–8 mm. wide, acuminate, scarcely narrowed toward the base, papillose-pilose on the under surface and with scattered long hairs on the upper; panicles short-exserted, 6–8 cm. long, about two thirds as wide, the axis pilose, the flexuous branches ascending; spikelets 2.4–2.6 mm. long, 1.2–1.4 mm. wide, obovate-oblong, obtuse, papillose-pubescent; first glume one fourth to one third as long as the spikelet, pointed; second glume scarcely equaling the fruit and sterile lemma; fruit 2.1 mm. long, 1.3 mm. wide, elliptic.

Autumnal phase spreading, with geniculate nodes and elongate, arched internodes, rather sparingly branching from the middle nodes, the primary branches elongate, the ultimate branchlets shorter than the internodes.

TYPE LOCALITY: Castle Crag, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 255*.

154. **Panicum malacon** Nash, Bull. Torrey Club **24**: 197. 1897.

Panicum strictifolium Nash, Bull. Torrey Club **26**: 579. 1899.

Vernal phase erect or stiffly spreading, purplish olive-green; culms 30–50 cm. high, pubescent with ascending-hairs, the nodes short-pubescent; leaf-sheaths pubescent like the culms, sometimes sparsely so; blades stiffly ascending or somewhat spreading, 4–12 cm. long, 3–5 mm. wide, rarely wider, sharply acuminate, scarcely narrowed toward the base, puberulent beneath, puberulent or glabrous above, often villous at or near the margin or base with long hairs; panicles 4–7 cm. long, three fourths to nearly as wide, few-flowered, the branches few, stiffly ascending, the spikelets on long, stiff pedicels; spikelets 3–3.2 mm. long, 1.4–1.5 mm. wide,

obovate (oblong before maturity), pubescent; first glume distant, half as long as the spikelet or more, subacute, 5–7-nerved; second glume scarcely equaling the fruit and sterile lemma; fruit short-stipitate, 2.5 mm. long, 1.4 mm. wide, elliptic, acute.

Autumnal phase more or less decumbent-spreading, branching from the lower and middle nodes, the branches appressed and later rather sparingly producing appressed fascicled branchlets, the reduced blades stiff, erect, and involute-pointed.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: Florida.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 389*; Contr. U. S. Nat. Herb. 15: *f. 257*.

155. **Panicum Commonsianum** Ashe, Jour. Elisha Mitchell Soc. **15**: 55. 1898.

Vernal plants grayish-olive, drying brownish; culms usually in dense tufts 20–50 cm. high, stiffly ascending or spreading, papillose-strigose to appressed-pilose, the hairs at the nodes more spreading; leaf-sheaths shorter than the internodes, strigose to appressed-pilose like the culms but less densely so; ligule 1 mm. long or less; blades firm, stiffly ascending, 5–8 (rarely 9) cm. long, 4–7 mm. wide, broadest near the rounded base, the serrulate, cartilaginous margin involute toward the acuminate apex, glabrous on the upper surface or with a few long hairs toward the base or margin, strigose on the lower surface or glabrous; panicles long-exserted, 4–8 cm. long, about as wide, loosely flowered, the axis and branches strigose to nearly glabrous, the branches stiffly spreading, spikelet-bearing toward the ends; spikelets 2.2–2.4 mm. long, 1.2 mm. wide, elliptic, subacute, pubescent; first glume about half as long as the spikelet, sometimes longer, usually pointed, 3-nerved; second glume slightly shorter than the fruit and sterile lemma at maturity; fruit 2 mm. long, 1 mm. wide, elliptic, subacute.

Autumnal culms branching from the middle and upper nodes, after the maturity of the primary panicles becoming spreading or prostrate, the larger clumps forming mats in the sand, the reduced secondary subinvolute blades rather crowded, stiffly ascending, overtopping the panicles; winter blades lanceolate, commonly more hairy than those of the culm.

TYPE LOCALITY: Cape May, New Jersey.
DISTRIBUTION: Connecticut to northern Florida.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 259*; Britt. & Brown, Ill. Fl. ed. 2. *f. 367*.

156. **Panicum Addisonii** Nash, Bull. Torrey Club **25**: 83. 1898.

Panicum Owenae Bickn. Bull. Torrey Club **35**: 185. 1908.

Vernal phase similar to that of *P. Commonsianum* and often closely resembling that species; culms more slender, rarely as much as 40 cm. high, appressed or ascending-pilose at least below, puberulent above; leaf-sheaths sparsely ascending-pilose; blades stiffly ascending, 4–7 cm. long, 3–6 mm. wide, involute-pointed, glabrous on the upper surface, sometimes with a few long hairs near the margin, pubescent or glabrous beneath; panicles long-exserted, 2–6 cm. long, two thirds to three fourths as wide, the stiff branches ascending, the panicle thus appearing more densely flowered; spikelets 2–2.1 mm. long, 1.1 mm. wide, obovate, blunt, papillose-pubescent, or the papillae obscure; first glume one third to half as long as the spikelet, usually pointed; second glume and sterile lemma barely equaling the fruit at maturity; fruit 1.7 mm. long, 1 mm. wide, elliptic, subobtuse.

Autumnal phase more or less spreading, rather freely branching from all the nodes, the branches appressed or narrowly ascending, the later branchlets somewhat fascicled, the stiff blades not greatly reduced, overtopping the numerous reduced panicles.

TYPE LOCALITY: Wildwood, New Jersey.
DISTRIBUTION: Massachusetts to South Carolina.
ILLUSTRATIONS: Bull. U. S. Dept. Agr. Agrost. 17: *f. 374*; Contr. U. S. Nat. Herb. 15: *f. 261*; Britt. & Brown, Ill. Fl. 3: App. *f. 267e*; ed. 2. *f. 363*, *f. 366b*.

157. **Panicum wilmingtonense** Ashe, Jour. Elisha Mitchell Soc. **16**: 86. 1900.

Panicum alabamense Ashe, Bull. N. Car. Exp. Sta. 175: 116. 1900, Not *P. alabamense* Trin. 1854.

Vernal phase bluish-green; culms solitary in small tufts, slender, erect from an ascending base, 20–40 cm. high, pilose with soft, ascending hairs, the nodes pubescent with short, reflexed

hairs; leaf-sheaths pubescent like the culms, densely villous-ciliate at the summit; blades rather stiff, ascending, 4–9 cm. long, 3–7 mm. wide, glabrous on the upper surface, softly pubescent to nearly glabrous beneath, strongly ciliate on the margin near the base, the thick cartilaginous margin white at least when dry; panicles 5–8 cm. long, the branches ascending; spikelets 2 mm. long, 1 mm. wide, elliptic, subacute; first glume one fourth to one third as long as the spikelet; second glume and sterile lemma pubescent, the glume slightly shorter than the fruit at maturity; fruit 1.7 mm. long, 1 mm. wide, elliptic, obtuse.

Autumnal phase spreading, branching from the middle and upper nodes, the branches rather crowded, the reduced involute-pointed blades exceeding the ultimate panicles; blades of the winter rosette as much as 7 cm. (rarely 12 cm.) long.

TYPE LOCALITY: Wilmington, North Carolina.
DISTRIBUTION: North Carolina and Alabama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 263.*

158. **Panicum tsugetorum** Nash, Bull. Torrey Club **25**: 86. 1898.

Panicum lanuginosum siccanum Hitchc. & Chase; Hitchc. Rhodora **8**: 207. 1906.

Vernal plants usually pale bluish-green; culms 30–50 cm. high, spreading or ascending, the lower nodes often geniculate, densely appressed-pubescent with short, crisp hairs, long hairs more or less copiously intermixed with these on the lower internodes or sometimes nearly to the summit; leaf-sheaths commonly not much shorter than the internodes, pubescent like the culm but less densely so, ascending-ciliate on the margin; ligule 1–1.5 mm. long; blades thickish, firm, with a thin white cartilaginous margin, ascending, 4–7 cm. long, 4–7 mm. wide, rounded at the base, acuminate, glabrous or with a few long hairs near the base on the upper surface, appressed-puberulent beneath; panicles 3–7 cm. long, nearly as wide, the axis and spreading, flexuous branches appressed crisp-puberulent; spikelets 1.8–1.9 mm. long, 1 mm. wide, obovate-obtuse, rather turgid, short-pubescent; first glume one third to two fifths as long as the spikelet, acute; second glume and sterile lemma barely equaling the fruit at maturity; fruit 1.5 mm. long, 1 mm. wide, broadly elliptic, obtuse.

Autumnal phase decumbent-spreading, branching from the lower and middle nodes often before the maturity of the primary panicles, the branches ascending, the ultimate branchlets appressed, the blades not greatly reduced nor crowded; winter rosette appearing rather early, the blades often conspicuously long-pilose.

TYPE LOCALITY: New York Botanical Garden.
DISTRIBUTION: Maine to Illinois and Tennessee.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 370*; Contr. U. S. Nat. Herb. **15**: *f. 265*; Britt. & Brown, Ill. Fl. **3**: App. *f. 267d*; ed. 2. *f. 369.*

159. **Panicum columbianum** Scribn. Bull. U. S. Dep. Agr. Agrost. **7**: 78. 1897.

Panicum heterophyllum Bosc; Nees, Agrost. Bras. 227. 1829. Not *P. heterophyllum* Spreng. 1822.
Panicum psammophilum Nash, Bull. Torrey Club **26**: 576. N 1899. Not *P. psammophilum* Welw. Jl 1899.

Vernal plants light grayish-green, often purplish; culms tufted, 15–50 cm., rarely 60 cm. high, stiffly ascending, densely crisp-puberulent with long, ascending, crimped hairs commonly intermixed toward the base, but much less copiously than in *P. tsugetorum;* leaf-sheaths shorter than the internodes, less pubescent than the culms, sometimes puberulent between the nerves only; ligule less than 1 mm. long; blades firm, ascending or erect, 3–6 cm. long (seldom more than 5 cm. long), 3–5 mm. wide, broadest at the rounded base, the serrulate, often white, cartilaginous margin usually involute toward the acuminate apex, typically glabrous on the upper surface but sometimes sparsely pilose toward the base, densely appressed-puberulent to glabrous beneath; panicles 2.5–4 cm. (rarely 5 cm.) long, about three fourths as wide, the lower branches ascending, the axis and branches puberulent to nearly glabrous; spikelets 1.5–1.6 mm. long, 1 mm. wide, obovate, obtuse, turgid, densely short-pubescent; first glume one third to scarcely half as long as the spikelet, acute or subacute; second glume and sterile lemma subequal, scarcely covering the fruit at maturity; fruit 1.3 mm. long, 0.9 mm. wide, broadly elliptic, obtuse.

Autumnal culms branching from the middle and upper nodes at the maturity of the primary panicles, becoming widely spreading or decumbent at base, the early branches sometimes nearly equaling the primary culm, the ultimate branchlets in short, appressed fascicles, the crowded blades usually equaling or exceeding the reduced panicles; winter blades thickish, lanceolate, often sparsely pilose or ciliate.

TYPE LOCALITY: District of Columbia.
DISTRIBUTION: Maine to Virginia.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 60*; Contr. U. S. Nat. Herb. **15**: *f. 267*; Britt. & Brown, Ill. Fl. **3**: App. *f. 267b*; ed. *2. f. 368.*

Panicum columbianum thinium Hitchc. & Chase; B. L. Robinson, Rhodora **10**: 64. 1908. *Panicum unciphyllum thinium* Hitchc. & Chase; Hitchc. Rhodora **8**: 209. 1906. Distinguished by its somewhat smaller spikelets, longer pubescence, more slender culms, and the autumnal phase with the branches aggregated toward the summit. ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 269.*

160. **Panicum oricola** Hitchc. & Chase; Hitchc. Rhodora **8**: 208. 1906.

Vernal phase grayish, often purplish; culms densely tufted, 10–30 cm. high, spreading, densely appressed- or ascending-pilose, the hairs on the nodes spreading; leaf-sheaths usually more than half the length of the internodes, appressed-pilose; ligule 1–1.5 mm. long; blades firm, erect or ascending, 2–5 cm. long, 2–4 mm. wide, broadest near the base, acuminate, the upper surface pilose with hairs 3–5 mm. long, the lower surface appressed-pubescent with longer hairs intermixed; panicles short-exserted, or rarely long-exserted early in the season, 1.8–3 cm. long, rarely longer, about two thirds as wide, rather densely flowered, the axis appressed-pubescent, the flexuous branches ascending or spreading; spikelets 1.5 mm. long, 1 mm. wide, broadly obovate, turgid, obtuse, pubescent with short spreading hairs; first glume one third to half the length of the spikelet, abruptly pointed; second glume and sterile lemma barely equaling the fruit at maturity; fruit 1.3 mm. long, 0.9 mm. wide, broadly elliptic, very turgid.

Autumnal phase prostrate, forming mats, with short, fascicled branches at all the nodes, the branches appearing before the maturity of the primary panicles; leaves and panicles not greatly reduced, the latter overtopped by the blades, which are less pilose than earlier ones; winter blades sparsely pilose above.

TYPE LOCALITY: Lewes, Delaware.
DISTRIBUTION: Massachusetts to Virginia.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 271.*

161. **Panicum sphaerocarpon** Ell. Bot. S. C. & Ga. **1**: 125. 1816.

Panicum Kalmii Sw. Adnot. Bot. 6. 1829.
Panicum heterophyllum Sw. Adnot. Bot. 6, as synonym. 1829. Not *P. heterophyllum* Spreng. 1822.
Panicum dichotomum sphaerocarpum Wood, Class-Book ed. 1861. 786. 1861.
Panicum nitidum crassifolium A. Gray; Doell, in Mart. Fl. Bras. 2^2: 247. 1877.
Panicum microcarpon sphaerocarpon Vasey, Grasses U. S. 12. 1883.

Vernal plants light-green, in tufts of few to several culms, 20–55 cm. high, radiate-spreading,occasionally nearly erect, the nodes appressed-pubescent; leaf-sheaths nearly as long as or longer than the comparatively short internodes, loose toward the summit, ciliate on the margin, otherwise glabrous, sometimes with viscid tubercles between the nerves; ligule nearly or quite wanting; blades thick and firm with usually inconspicuous nerves, ascending, 6–10 cm. long, 7–14 mm. wide (rarely longer or wider), the upper and lower smaller, acuminate, slightly narrowed to the subcordate base, rough on the upper surface, smooth below, the cartilaginous, scabrous margins stiffly ciliate toward the base; panicles long-exserted, 5–10 cm. long, nearly as wide, rather loosely flowered, the axis and ascending branches with viscid spots; spikelets 1.6–1.8 mm. long, 1–1.3 mm. wide (in exceptional specimens only 1.5 mm. long), obovoid-spheric at maturity (oval when young), puberulent; first glume about one fourth the length of the spikelet, obtuse; second glume and sterile lemma equaling the fruit at maturity; fruit, 1.4–1.5 mm. long, 1–1.2 mm. wide, obovoid-spheric.

Autumnal phase prostrate-spreading, sparingly branching late in the season from the base or lower and middle nodes, the branches short, mostly simple, the blades and panicles not greatly reduced; winter rosettes of many thick, ovate or ovate-lanceolate, white-margined leaves, appearing early.

TYPE LOCALITY: Georgia.
DISTRIBUTION: Vermont to Illinois, and south to Florida, eastern Texas, Mexico, and northern South America.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 13, f. 51, 52*; Bull. U. S. Dep. Agr. Agrost. **7**: *f. 57*; Contr. U. S. Nat. Herb. **15**: *f. 273*; Britt. & Brown, Ill. Fl. *f. 252*; ed. 2. *f. 341*.

Panicum sphaerocarpon inflatum (Scribn. & Smith) Hitchc.; Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 253. 1910. *P. inflatum* Scribn. & Smith; Scribn. Circ. U. S. Dep. Agr. Agrost. **16**: 5. 1899. *P. mississippiense* Ashe, Jour. Elisha Mitchell Soc. **16**: 91. 1900. Distinguished by the presence of a ligule 0.3–1 mm. long, taller ascending more slender culms, and narrow parallel-margined blades. Maryland to Florida, west to eastern Texas, thence north to Missouri; the type was from Biloxi, Mississippi. ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 275*.

162. **Panicum polyanthes** Schultes, in R. & S. Syst. Veg. Mant. **2**: 257. 1824.

Panicum multiflorum Ell. Bot. S. C. & Ga. **1**: 122. O 1816. Not *P. multiflorum* Poir. My 1816.
Panicum microcarpon Muhl. Descr. Gram. 111. 1817. Not *P. microcarpon* Muhl.; Ell. 1816.
Panicum microcarpon isophyllum Scribn. Bull. Tenn. Exp. Sta. **7**: 51. 1894.

Vernal plants light-green, in tufts of few to several culms, 30–90 cm. high, stout, erect, the nodes glabrous or nearly so; leaf-sheaths long, usually overlapping, finely ciliate on the margin, otherwise glabrous; ligule obsolete or wanting; blades rather thin, prominently nerved, ascending, 12–23 cm. long, 15–25 mm. wide, the upper seldom reduced, long-acuminate, scarcely narrowed toward the cordate base, rough or smooth on the upper surface, smooth below, the cartilaginous, scabrous margin ciliate toward the base; panicles exserted, 8–25 cm. long, one fourth to half as wide, densely flowered, the lower branches narrowly ascending, often distant, the upper fascicled, spikelet-bearing to the base; spikelets 1.5–1.6 mm. long, 1–1.1 mm. wide, obovoid-spheric at maturity, minutely puberulent; first glume one third to two fifths the length of the spikelet, obtuse or obscurely pointed; second glume and sterile lemma equaling the fruit at maturity; fruit obovoid-spheric.

Autumnal phase remaining erect and simple or producing from the lower or middle nodes simple branches with smaller blades and panicles; winter rosettes like those of *P. sphaerocarpon*, but the leaves larger.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: New Jersey to Georgia and eastern Texas.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 14, f. 53, 54* (as *P. microcarpon*); Bull. U. S. Dep. Agr. Agrost. **17**: *f. 365*; Contr. U. S. Nat. Herb. **15**: *f. 277*; Britt. & Brown, Ill. Fl. *f. 253* (as *P. microcarpon*); ed. 2. *f. 342*.

163. **Panicum erectifolium** Nash, Bull. Torrey Club **23**: 148. 1896.

Panicum sphaerocarpon floridanum Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 33. 1889.
Panicum floridanum Chapm. Fl. S. U. S. ed. 3. 585. 1897. Not *P. floridanum* Trin. 1835.

Vernal plants dull-green, sometimes bluish, in tufts of few to several culms, 30–70 cm. high, erect or ascending, usually stout, glabrous, including the nodes; leaf-sheaths, except the uppermost, short, rather loose, usually crowded and overlapping at the base, ciliate on the margin, otherwise glabrous; ligule about 0.3 mm. long; blades thick and firm with inconspicuous veins, ascending or erect, 7–13 cm. long, 6–12 mm. wide, the crowded lower ones usually much larger than the others, these successively smaller upward, tapering from the cordate base to the acuminate apex, smooth on both surfaces, the margins scabrous, stiffly ciliate toward the base; panicles exserted, 6–12 cm. long, half to two thirds as wide, densely flowered, the lower branches usually narrowly ascending; spikelets 1–1.2 mm. long, 0.8–1 mm. wide, broadly ovate or subspheric, densely puberulent; first glume one fifth to one fourth the length of the spikelet, obtuse; second glume and sterile lemma equaling the fruit at maturity; fruit oval, very obscurely umbonate.

Autumnal phase remaining erect and simple or late in the season producing branches from the third or fourth node, the branches nearly as long as the primary culm, rarely again branching; winter rosettes appearing late, the blades 3–10 cm. long.

TYPE LOCALITY: Florida.
DISTRIBUTION: North Carolina to Florida and Louisiana; Cuba.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 361*; Contr. U. S. Nat. Herb. **15**: *f. 279*.

164. **Panicum tenue** Muhl. Descr. Gram. 118. 1817.

Panicum deustum Brickell & Enslen; Muhl. Descr. Gram. 119, as synonym. 1817. Not *P. deustum* Thunb. 1794.
Panicum liton Schultes, in R. & S. Syst. Veg. Mant. **2**: 250. 1824.
Panicum unciphyllum Trin. Gram. Pan. 242. 1826.
Panicum macrum Kunth, Rév. Gram. 40. 1829.
Panicum parvulum Muhl.; Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 4, as synonym. 1900. Not *P. parvulum* Trin. 1834.

Vernal phase olive-green; culms in rather small tufts, 20–55 cm. high, slender, erect from a more or less geniculate base, glabrous, or the lower internodes sparsely appressed-pubescent, the nodes glabrous, appressed-pubescent, or appressed-pilose; leaf-sheaths usually much shorter than the internodes, puberulent between the nerves to sparsely appressed-pilose, or the upper glabrous; ligule 0.3–0.5 mm. long, dense; blades distant, ascending or spreading, 2–5 cm. long, 3–4 mm. wide, rather thick and with a cartilaginous, often white, margin, involute-pointed, usually densely puberulent beneath, glabrous on the upper surface or puberulent toward the base; panicles long-exserted, 3–5 cm. long, about as wide, pyramidal, open, rather few-flowered, the flexuous branches spreading; spikelets 1.6–1.7 mm. long, elliptic, subobtuse, densely puberulent; first glume one fifth as long as the spikelet or less, obtuse; second glume shorter than the fruit and sterile lemma; fruit 1.4–1.5 mm. long, elliptic, subobtuse.

Autumnal culms erect or leaning, sparingly branching from the middle nodes, the branches in small fascicles, shorter than the primary internodes, the blades not much reduced; winter rosette conspicuous, the thick, cartilaginous-margined, involute-pointed blades 3–5 cm. long, 4–7 mm. wide, persistent (but usually dead) during the succeeding year.

TYPE LOCALITY: Southeastern United States, the exact locality not known.
DISTRIBUTION: North Carolina and Florida.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 281.*

165. **Panicum albomarginatum** Nash, Bull. Torrey Club **24**: 40. 1897.

Vernal plants usually grayish-green, often purplish; culms densely tufted, 15–40 cm. high (rarely taller), slender but firm, ascending or spreading, glabrous including the nodes; leaves crowded at the base, distant above; sheaths sometimes pubescent on the margin and at the summit, otherwise glabrous, or the lowermost sometimes obscurely pubescent; ligule 0.3 mm. long, dense; blades thick and firm, those of the midculm 4–6 cm. long, 4–6 mm. wide, rounded at the base, with a prominent white, finely serrulate, cartilaginous margin, ascending or spreading, glabrous, the crowded basal blades as much as 11 cm. long, and the uppermost blade usually much reduced; panicles finally long-exserted, 3–6 cm. long, nearly as wide, rather densely flowered, the flexuous branches ascending or spreading; spikelets 1.4–1.5 mm. long, 0.7 mm. wide, obovate-elliptic, subobtuse, turgid at maturity, densely puberulent; first glume one fifth to one fourth as long as the spikelet, obtuse or subacute; second glume and sterile lemma scarcely equaling the fruit at maturity; fruit 1.25 mm. long, 0.65 mm. wide, elliptic, subacute.

Autumnal phase spreading, the primary culms branching from the base and lower nodes, these early branches much longer than the primary internodes and repeatedly branching, forming bushy tufts, the ultimate branchlets and reduced blades appressed; winter blades stiffly erect or spreading, very smooth and firm.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: Virginia to Florida and Louisiana; Cuba; Guatemala.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 359*; Contr. U. S. Nat. Herb. **15**: *f. 283.*

166. **Panicum trifolium** Nash, Bull. Torrey Club **26**: 580. 1899.

Vernal phase similar to that of *P. albomarginatum*, but the culms in smaller tufts, taller, 20–50 cm. high, more slender, erect; leaves less conspicuously crowded at the base, not so stiff, and proportionately not so much longer than those of the mid-culm; sheaths much shorter than the elongate internodes; blades 3–5 cm. long, 4–5 mm. wide, rather less thick and firm than those of *P. albomarginatum*, the uppermost blade not reduced; panicles usually short-exserted, 3–5 cm. long, about as wide, loosely flowered; spikelets as in *P. albomarginatum* but hardly as wide or as turgid, and the fruit rather less exposed at maturity.

Autumnal phase erect or leaning, sparingly branching from the middle and upper nodes, the branches usually shorter than the primary internodes.

TYPE LOCALITY: Ocmulgee River Swamp, below Macon, Georgia.
DISTRIBUTION: North Carolina and Tennessee to Florida and Louisiana.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 285*.

167. **Panicum flavovirens** Nash, Bull. Torrey Club **26**: 572. 1899.

Vernal phase bright glossy-green; culms densely tufted, very slender, ascending or spreading, 15–30 cm. high, glabrous, more or less striate-angled, the lower leaves somewhat crowded with overlapping sheaths, the upper distant; leaf-sheaths often minutely ciliate on the margin, especially at the summit, otherwise glabrous or the lowermost obscurely pubescent; blades ascending or spreading, 2–5 cm. long, 3–4 mm. wide, narrowed toward the rounded base, glabrous, or minutely puberulent beneath, thin, the cartilaginous margin inconspicuous or wanting; panicles open, loosely few-flowered, the flexuous branches spreading or the lower somewhat reflexed; spikelets 1.3–1.4 mm. long, 0.7 mm. wide, elliptic, subacute, pubescent; first glume one fourth to one third as long as the spikelet, subacute; second glume hardly equaling the fruit and sterile lemma; fruit 1.25 mm. long, 0.6 mm. wide, elliptic.

Autumnal phase spreading, the slender culms mostly decumbent or prostrate, branching from the lower and middle nodes, these early branches usually as long as the primary culms and loosely branching toward the summit, the short branchlets somewhat fascicled, the flat, reduced blades spreading, the ultimate panicles reduced but exserted; winter rosettes appearing early, usually conspicuous and persisting green during the following season as a dense tuft of sterile shoots with somewhat developed internodes, the blades thin, bright glossy-green, as much as 7 cm. long, 3–5 mm. wide.

TYPE LOCALITY: Lake County, Florida.
DISTRIBUTION: North Carolina to Florida and Mississippi.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 287*.

168. **Panicum concinnius** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 263. 1910.

Panicum gracilicaule Nash, in Small, Fl. SE. U. S. 98. 1903. Not *P. gracilicaule* Rendle, 1899.

Vernal phase bright-green; culms tufted, very slender, erect, glabrous, 12–50 cm. high; nodes minutely puberulent; leaf-sheaths, except the lower, much shorter than the internodes and less than half as long as the blades, puberulent on the margin, otherwise glabrous; ligule about 0.5 mm. long; blades 5–7 cm. long, 5–6 mm. wide, erect or spreading, the margins nearly parallel for most of their length, rounded at base, glabrous or obscurely puberulent beneath, rather strongly nerved, faintly white-margined; panicles finally long-exserted, rather few-flowered, 3–6 cm. long, about two thirds as wide, the branches ascending; spikelets 1.1 mm. long, 0.7 mm. wide, obovate, obtuse, pubescent; first glume about one fifth the length of the spikelet; second glume and sterile lemma slightly shorter than the fruit at maturity; fruit 1 mm. long, elliptic, acute.

Autumnal phase radiate-spreading, late in the season bearing a few branches with somewhat reduced blades and small exserted panicles; winter rosette appearing early, the numerous, rather firm blades bluish-green, about the size of those of the vernal culms.

TYPE LOCALITY: Sand Mountain, Jackson County, Alabama.
DISTRIBUTION: Georgia and Alabama.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 289*.

169. **Panicum ensifolium** Baldw.; Ell. Bot. S. C. & Ga. **1**: 126. 1816.

Panicum nitidum ensifolium Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 29. 1889.
Panicum Brittonii Nash, Bull. Torrey Club **24**: 194. 1897.
Panicum Cuthbertii Ashe, Jour. Elisha Mitchell Soc. **15**: 48. 1898.
Panicum glabrissimum Ashe, Jour. Elisha Mitchell Soc. **15**: 62. 1898. Not *P. glaberrimum* Steud. 1854.
Panicum Shallotte Ashe, Jour. Elisha Mitchell Soc. **16**: 84. 1900.
Panicum parvipaniculatum Ashe, Jour. Elisha Mitchell Soc. **16**: 87. 1900.

Vernal plants grayish-olive; culms cespitose, slender, erect or reclining, glabrous, 20–40 cm. high; leaf-sheaths glabrous, usually much shorter than the internodes; blades distant, often

reflexed, 1–3 cm. long, 1.5–3 mm. wide, glabrous on the upper surface or puberulent toward the base, puberulent beneath, at least toward the tip; panicles finally long-exserted, 1.5–4 cm. long, nearly as wide, the flexuous branches spreading or the lower reflexed; spikelets 1.3–1.5 mm. long, elliptic, subacute, glabrous or puberulent; first glume one fourth as long as the spikelet or less, acute or obtuse; second glume slightly shorter than the fruit and sterile lemma; fruit 1.2 mm. long, elliptic, subacute.

Autumnal culms spreading or reclining, sparingly branching from the middle nodes, the branches mostly remaining simple; winter blades glabrous, usually short, 1.5–3 cm. long, 2–4 mm. wide.

TYPE LOCALITY: Georgia.
DISTRIBUTION: New Jersey to Georgia; Mississippi.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 368*; Circ. U. S. Dep. Agr. Agrost. **29**: *f. 4*; Contr. U. S. Nat. Herb. **15**: *f. 291*; Britt. & Brown, Ill. Fl. **3**: App. *f. 263a*; ed. 2. *f. 343*.

170. **Panicum vernale** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 266. 1910.

Vernal plants light-green, soft in texture; culms densely cespitose, 15–30 cm., rarely 40 cm. high, very slender, ascending or spreading, glabrous, the nodes glabrous; leaves clustered at the base, the thin, rather soft blades 2–7 cm. long, 3–5 mm. wide, those of the culm remote, the glabrous sheaths one fourth to one third as long as the elongate internodes; ligule almost obsolete; blades 0.7–2.5 cm. long, 2–3 mm. wide, glabrous or puberulent on the lower surface, occasionally also on the upper surface, at first erect, becoming spreading or reflexed; panicles finally long-exserted, 1.5–3 cm. long, nearly as wide, rather few-flowered, the flexuous branches spreading; spikelets 1.4–1.5 mm. long, 0.8 mm. wide, obovate-elliptic, subacute, pubescent; first glume about one fourth as long as the spikelet, subacute; second glume and sterile lemma scarcely as long as the fruit at maturity; fruit 1.2 mm. long, 0.7–0.8 mm. wide.

Autumnal phase like the vernal form in appearance, branching from the base, these culms simple and soon dying to the ground, rarely late in the season producing a few short fascicled branchlets at the nodes, the scarcely reduced flat blades spreading; winter leaves numerous, soft, persistent during the vernal stage, linear, rather abruptly narrowed at the apex, not long-acuminate.

TYPE LOCALITY: Lake City, Florida.
DISTRIBUTION: Florida to Mississippi.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 293*.

171. **Panicum curtifolium** Nash, Bull. Torrey Club **26**: 569. 1899.

Panicum Earlei Nash, Bull. Torrey Club **26**: 571. 1899.
Panicum austro-montanum Ashe, Jour. Elisha Mitchell Soc. **16**: 85. 1900.

Vernal phase in dense colonies, the culms not crowded in the clump; culms 10–30 cm. high, slender, weak, angled, erect or spreading, glabrous or sometimes with a few scattered hairs, the nodes sparsely bearded; leaf-sheaths much shorter than the elongate internodes, striate-angled, sparsely spreading-pilose, ciliate, especially at the summit; ligule about 1 mm. long, the hairs soft, rather sparse; blades spreading or reflexed, 1.5–3 cm. long, 2–5 mm. wide, thin and soft, sparsely pilose on both surfaces or glabrous above except for long soft hairs near the base; panicles short-exserted at least till after maturity, 2–3 cm. long, nearly as wide, the branches ascending; spikelets 1.4 mm. long, 0.7 mm. wide, elliptic-obovate, obtuse, glabrous, or minutely pubescent; first glume about one fifth as long as the spikelet; second glume and sterile lemma both shorter than the fruit at maturity; fruit 1.25 mm. long, 0.7 mm. wide, elliptic.

Autumnal phase weakly spreading, the culms branching from the middle nodes after the maturity of the primary panicles, the branches exceeding the internodes; ultimate branchlets in small fascicles toward the summit of the branches, the reduced blades spreading and the small panicles mostly exserted; winter rosette appearing early, the soft blades mostly 2–3 cm., but sometimes as much as 5 cm. long.

TYPE LOCALITY: Ocean Springs, Mississippi.
DISTRIBUTION: South Carolina and Tennessee to Florida and Mississippi.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 295*.

172. **Panicum chamaelonche** Trin. Gram. Pan. 242. 1826.

Panicumnitidum minus Vasey, Contr. U. S. Nat. Herb. **3**: 30. 1892.
Panicum Baldwinii Nutt.; Kearney, Bull. U. S. Dep. Agr. Agrost. **1**: 21. 1895.

Vernal phase densely tufted; culms 10–20 or even 30 cm. high, ascending, glabrous, the nodes glabrous; leaf-sheaths, except the basal ones, half as long as the internodes or less, at least the upper rather loose, glabrous or occasionally with a few cilia on the margin; ligule 0.2 mm. long; blades firm, ascending or spreading, 1.5–4 cm., rarely 5 cm. long, 2–3 mm. wide, more or less involute-pointed, glabrous on both surfaces, often with a few long, stiff hairs on the margin near the base; panicles finally long-exserted, 2.5–5 cm. long, nearly as wide, the flexuous branchlets and pedicels spreading at nearly right angles; spikelets 1.1–1.2 mm. long, 0.6 mm. wide, obovate, obtuse, turgid, glabrous; first glume one fourth to one third as long as the spikelet, obtuse; second glume slightly shorter than the fruit and sterile lemma; fruit 0.9–1 mm. long, 0.6 mm. wide, elliptic, subobtuse.

Autumnal phase freely branching from the base and lower nodes, the early branches often as long as the primary culms, repeatedly branching, forming dense cushions, as much as 50 cm. across, the longer culms upturned at the ends; ultimate branchlets more or less fascicled, the scarcely reduced blades drying involute, overtopping the small panicles; winter rosettes usually persisting green during the vernal state, the rather firm blades 2–5 cm. long.

TYPE LOCALITY: North America.
DISTRIBUTION: North Carolina to Florida and Mississippi.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 358*; Contr. U. S. Nat. Herb. **15**: *f. 297*.

173. **Panicum glabrifolium** Nash, Bull. Torrey Club **24**: 196. 1897.

Vernal phase similar to that of *P. chamaelonche*, in smaller tufts; culms stouter, more or less flattened, 15–50 cm. high, erect or sometimes subgeniculate at base; blades firm, erect, or narrowly ascending, 4–12 cm. long, or the lower occasionally as much as 20 cm. long, 2–4 mm. wide, usually involute at least toward the apex, glabrous; panicles 4–9 cm. long, two thirds to three fourths as wide, the branches ascending, the ultimate branchlets and spikelets more or less secund along the lower side of the branches; spikelets 1.2–1.4 mm. long, obovate, obtuse, turgid, glabrous; first glume about one third as long as the spikelet; second glume shorter than the fruit and sterile lemma; fruit 1.1–1.2 mm. long, elliptic.

Autumnal culms wiry, elongate, and spreading, with geniculate nodes and long internodes, freely branching from the middle and upper nodes, the blades long and narrow, overtopping the somewhat reduced panicles; winter leaves less numerous than in *P. chamaelonche*, as much as 10–15 cm. long, stiffly ascending.

TYPE LOCALITY: Tampa, Florida.
DISTRIBUTION: Florida.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 387*; Contr. U. S. Nat. Herb. **15**: *f. 299*.

174. **Panicum breve** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 271. 1910.

Vernal phase purplish; culms in dense tufts, 5–17 cm. high, erect, stiff and wiry, glabrous or appressed-pubescent below; leaf-sheaths crowded at the base as in species of *Festuca*, those of the culms usually longer than the internodes, ciliate on the margin, otherwise glabrous; ligule dense, about 0.3 mm. long; blades firm, erect or ascending, 3–6 cm., sometimes 8 cm. long, about 1.5 mm. wide when flattened out, strongly involute, more or less falcate, sometimes strongly so, a few long, stiff hairs on the margin toward the base, otherwise glabrous; panicles short-exserted, 1.5–4 cm. long, nearly as wide, loosely flowered, the flexuous branches spreading; spikelets 1.3–1.4 mm. long, obovate, obtuse, turgid, puberulent; first glume one third to half as long as the spikelet; second glume and sterile lemma barely equaling the fruit at maturity; fruit 1.2 mm. long, elliptic.

Autumnal phase erect, branching from the middle nodes, the fascicled branches strict, the reduced wiry blades overtopping the panicles.

TYPE LOCALITY: Jensen, Florida.
DISTRIBUTION: East coast of Florida.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 301*.

175. **Panicum portoricense** Desv.; Hamilt. Prodr. 11. 1825.

Panicum pauciciliatum Ashe, Jour. Elisha Mitchell Soc. **16**: 87. 1900.

Vernal culms cespitose, erect or geniculate at base, slender, stiff and wiry, 15–30 cm. high, the internodes commonly reddish-purple, crisp-puberulent to nearly glabrous; leaf-sheaths much shorter than the internodes, striate, glabrous or crisp-puberulent, usually ciliate; blades firm, 2–5 cm. long, 3–6 mm. wide, ascending or spreading, glabrous to puberulent, ciliate near the base; panicles 2–4 cm., rarely 6 or 7 cm. long, two thirds as wide, the flexuous branches spreading or the lower reflexed, the pedicels and ultimate branchlets often directed toward the under side; spikelets 1.5–1.6 mm. long, 1 mm. wide; first glume one third to half as long as the spikelet, obtuse or truncate; second glume and sterile lemma puberulent, the glume shorter than the fruit and sterile lemma; fruit 1.4 mm. long, 1 mm. wide, elliptic-obovoid, obscurely pointed.

Autumnal culms ascending from a decumbent base, branching from all but the uppermost node before the maturity of the primary panicles, the primary internodes often elongating, the terminal joint with its panicle together with the internode below it often falling early, thus giving the appearance of short culms branching at all the nodes characteristic of this species; early branches about equaling these shortened primary culms, repeatedly branching, the ultimate branchlets in fascicles toward the ends, the reduced blades spreading, involute-pointed; winter rosette appearing late, not conspicuous.

TYPE LOCALITY: Porto Rico.
DISTRIBUTION: North Carolina to Florida and eastern Texas; Cuba; Porto Rico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 303*.

176. **Panicum lancearium** Trin. Gram. Pan. 223. 1826.

Panicum Nashianum Scribn. Bull. U. S. Dep. Agr. Agrost. **7**: 79. 1897.

Vernal culms cespitose, usually purplish, wiry, stiffly ascending from a more or less geniculate base, 20–50 cm. high, minutely grayish crisp-puberulent; leaf-sheaths puberulent, at least near the margin, much shorter than the internodes; blades ascending or spreading, firm, 2–6 cm. long, 3–7 mm. wide, puberulent or nearly glabrous beneath, usually glabrous on the upper surface, strongly ciliate toward the base, or sometimes nearly to the apex; panicles 3–6 cm. long, two thirds as wide, rather few-flowered, the flexuous branches spreading, or the lower reflexed; spikelets 2–2.1 mm. long, 1–1.2 mm. wide; first glume one third to half as long as the spikelet, obtuse or truncate; second glume and sterile lemma puberulent or sometimes glabrous, the glume slightly shorter than the fruit and sterile lemma; fruit 1.6–1.7 mm. long, 1 mm. wide, obovate-elliptic, minutely puberulent at the apex.

Autumnal culms geniculate-spreading, ascending at the ends, the stiff internodes occasionally elongate, branching from the middle nodes, the branches much longer than the internodes, late in the season bearing fascicles of short branchlets toward the summit, the reduced flat or involute-pointed blades spreading, the ultimate panicles reduced to a few spikelets, partly inclosed in the sheaths.

TYPE LOCALITY: North America.
DISTRIBUTION: Virginia to Florida and Mississippi; Cuba; Santo Domingo.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 61*; Contr. U. S. Nat. Herb. **15**: *f. 305*; Britt. & Brown, Ill. Fl. **3**: App. *f. 264a*; ed. 2. *f. 370*.

177. **Panicum patulum** (Scribn. & Merr.) Hitchc. Rhodora **8**: 209. 1906.

Panicum Nashianum patulum Scribn. & Merr. Circ. U. S. Dep. Agr. Agrost. **27**: 9. 1900.

Vernal phase densely cespitose, grayish-olive; culms geniculate-decumbent, ascending at the ends, as much as 50 cm. long, the internodes and leaf-sheaths densely velvety-puberulent, the latter usually ciliate on the margin, at least toward the summit; blades rather lax, spreading, 4–8 cm. long, 4–8 mm. wide, tapering toward both ends, velvety-puberulent beneath, softly pubescent on the upper surface, sometimes obscurely so, ciliate at least half their length; panicles as in *P. lancearium*, the spikelets more globular-pyriform than in that species, 1.3 mm. wide, and nearly as thick; second glume and sterile lemma densely papillose-pubescent; fruit 1.8 mm. long, 1.1–1.2 mm. wide; otherwise as in *P. lancearium*.

Autumnal phase more freely branching than in *P. lancearium*, often forming large mats, the decumbent culms producing ascending branches from all the nodes at about the maturity of the primary panicles, these repeatedly branching, the ultimate branchlets crowded, but about evenly so throughout, not in fascicles at the summit only, the spreading blades much reduced; winter rosettes appearing early, the blades often 7 or 8 cm. long, glabrous or nearly so on the upper surface.

TYPE LOCALITY: Braidentown, Florida.
DISTRIBUTION: Virginia to Florida and Louisiana.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 307*.

178. **Panicum Webberianum** Nash, Bull. Torrey Club **23**: 149. 1896.

Panicum onslowense Ashe, Jour. Elisha Mitchell Soc. **16**: 88. 1900.

Vernal phase commonly purplish; culms few to several in a tuft, rather stout, erect or ascending, 20–50 cm. high, minutely puberulent or glabrous; leaves somewhat crowded below, distant above; leaf-sheaths minutely puberulent at the summit, often ciliate on the margin, otherwise glabrous or nearly so; blades firm, ascending, especially the lower somewhat incurved or spoon-shaped, 3–9 cm. long, 4–12 mm. wide, usually ciliate at base and sometimes along the margin, rounded or subcordate at base, acute but not long-acuminate; panicles finally long-exserted, 4–10 cm. long, two thirds as wide, the numerous flexuous branches spreading or the lower even reflexed, the branchlets and pedicels usually rather short, thus giving to the main branches a somewhat racemose appearance; spikelets 2.3–2.5 mm. long (in exceptional specimens only 2.1–2.2 mm. long), 1.2–1.3 mm. wide, obovoid to pyriform, commonly green, conspicuously purple-stained at the base; first glume one third to two fifths as long as the spikelet; second glume and sterile lemma minutely pubescent or glabrous, the glume slightly shorter than the fruit and sterile lemma; fruit 1.9–2 mm. long, 1.2 mm. wide, elliptic, under a lens minutely papillose-roughened, puberulent at the tip.

Autumnal phase spreading or decumbent, flabellately branching at the middle and upper nodes, the branches appressed and rather evenly distributed, sometimes somewhat fascicled; winter blades 3–8 cm. long, 5–10 mm. wide, strongly stained with purple, forming a flat rosette.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: North Carolina to Florida.
ILLUSTRATIONS: Bull U. S. Dep. Agr. Agrost. **17**: *f. 377*; Contr. U. S. Nat. Herb. **15**: *f. 309*.

179. **Panicum patentifolium** Nash, Bull. Torrey Club **26**: 574. 1899.

Vernal phase often purplish throughout; culms several to many in a tuft, slender and wiry, widely decumbent-ascending, 25–55 cm. high, minutely puberulent or nearly glabrous; leaf-sheaths much shorter than the elongate internodes, a puberulent ring at the summit, otherwise glabrous or nearly so; blades stiffly spreading, 2.5–8 cm. long, 2–5 mm. wide, glabrous, acuminate, narrowed and sometimes ciliate toward the base; panicles commonly rather short-exserted, 3–7 cm. long, about half as wide, the branches few, ascending; spikelets 2.4–2.6 mm. long, 1.3 mm. wide, obovate, turgid; first glume one third to half as long as the spikelet, obtuse or subacute; second glume and sterile lemma puberulent or nearly glabrous, the glume slightly shorter than the fruit and sterile lemma; fruit 2 mm. long, 1.2 mm. wide, elliptic, smooth and shining, minutely puberulent at the apex.

Autumnal phase decumbent or spreading, branching from the middle and upper nodes, the branches appressed and somewhat elongate, the secondary branchlets shorter and more or less fascicled, not greatly reduced; winter rosettes appearing late, inconspicuous, the narrow blades ascending.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: Georgia to Florida and Mississippi.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 311*.

180. **Panicum Wilcoxianum** Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 32. 1889.

Milium Wilcoxianum Lunell, Am. Midl. Nat. **4**: 213. 1915.

Vernal phase dull-green; culms usually in dense tufts, erect, 10–25 cm. high, copiously papillose-hirsute, as are the rather loose, usually overlapping leaf-sheaths; ligule about 1 mm.

long; blades firm, erect or ascending, 5–8 cm. long, 3–6 mm. wide, broadest toward the base (this scarcely wider than the wide sheath), commonly involute-acuminate, long-hirsute on both surfaces; panicles finally exserted, often equaled or exceeded by the upper blades, 2–5 cm. long, about half as wide, or sometimes more expanded at anthesis, rather densely flowered; spikelets 2.7–3 mm. long, 1.5 mm. wide, obovate-elliptic, papillose-pubescent; first glume about one third as long as the spikelet, pointed or obtuse; second glume slightly shorter than the fruit and sterile lemma; fruit 2.4–2.5 mm. long, 1.3–1.4 mm. wide, elliptic.

Autumnal phase branching from all the nodes, forming bushy tufts with rigid, erect blades much overtopping the reduced panicles; branches appearing early, usually before the maturity of the primary panicles; secondary spikelets usually more turgid than those of the primary panicles.

TYPE LOCALITY: Nebraska.
DISTRIBUTION: Manitoba to Iowa and Kansas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 391*; Contr. U. S. Nat. Herb. **15**: *f. 313*; Britt. & Brown, Ill. Fl. *f. 260*; ed. 2. *f. 375*.

181. **Panicum malacophyllum** Nash, Bull. Torrey Club **24**: 198. 1897.

Panicum scoparium minus Scribn. Bull. Tenn. Exp. Sta. **7**: 48. 1894.

Vernal phase velvety or velvety-pilose throughout; culms slender, few to several in tufts, 25–70 cm. high, more or less geniculate at base with arched internodes, ascending or spreading, papillose-pilose with soft, reflexed hairs, the nodes retrorsely bearded; leaf-sheaths loose, shorter than the internodes, usually less copiously pilose than the culm; ligule 1–1.5 mm. long; blades spreading or ascending, 7–10 cm. long, 6–12 mm. wide, tapering to the rounded base, acuminate, rather thin, velvety on both surfaces, ciliate at least toward the base; panicles usually short-exserted, 3–7 cm. long, at first narrow, the lower branches finally spreading, with short, spikelet-bearing branchlets in the axils; spikelets 2.9–3 mm. long, 1.5–1.7 mm. wide, elliptic-obovate, obscurely pointed, turgid at maturity, papillose-pilose; first glume about one third as long as the spikelet; second glume and sterile lemma equaling the fruit at maturity; fruit 2.2 mm. long, 1.5 mm. wide, elliptic.

Autumnal phase spreading, freely branching from the middle and upper nodes before the maturity of the primary panicle, at length forming bushy, topheavy clumps with reduced blades and numerous secondary panicles.

TYPE LOCALITY: Sapulpa, Indian Territory [Oklahoma].
DISTRIBUTION: Tennessee to Oklahoma and eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 392*; Contr. U. S. Nat. Herb. **15**: *f. 315*; Britt. & Brown, Ill. Fl. ed. 2. *f. 378*.

182. **Panicum Helleri** Nash, Bull. Torrey Club **26**: 572. 1899.

Panicum pernervosum Nash, Bull. Torrey Club **26**: 576. 1899.

Vernal phase in clumps of few to several culms, light-green, usually somewhat bluish; culms 25–60 cm. high, slender, ascending or spreading, the lower internodes appressed-pilose, the upper often glabrous; leaf-sheaths sparsely papillose-hispid to glabrous, the papillae often without hairs as in *P. Scribnerianum*, ciliate on the margin; ligule about 1 mm. long; blades ascending or spreading, measuring about the same as those of *P. Scribnerianum*, but broadest about the middle, rather thin, glabrous on both surfaces or pubescent beneath, ciliate toward the base; panicles finally rather long-exserted, 6–12 cm. long, about three fourths as wide, more open and loosely flowered than in *P. Scribnerianum;* spikelets 2.9–3 mm. long, 1.6–1.7 mm. wide, obovate, turgid, blunt, glabrous, or with few scattered hairs; first glume about one third the length of the spikelet, acute; second glume and sterile lemma subequal, slightly exposing the fruit at maturity, strongly nerved; fruit 2.4–2.5 mm. long, 1.5–1.6 mm. wide; oval, obscurely apiculate.

Autumnal phase branching at all but the lowest nodes, forming loose sprawling tufts, the branches somewhat divaricate, with sheaths more commonly pubescent than those of the primary culm, the blades widely spreading, not much reduced, the long-pediceled spikelets rather conspicuous among the foliage.

TYPE LOCALITY; Kerrville, Texas.
DISTRIBUTION: Missouri to Louisiana and New Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 317*.

183. **Panicum Scribnerianum** Nash, Bull. Torrey Club **22**: 421. 1895.

Panicum macrocarpon Torr. Fl. U. S. 143. 1823. Not *P. macrocarpon* LeConte, 1819.

Vernal phase in clumps of few to many culms, 20–50 cm. high, erect or ascending, often geniculate at base, glabrous or harshly puberulent or sometimes ascending papillose-pilose; leaf-sheaths rather loose, conspicuously striate, ciliate on the margin, ascending-pubescent between the nerves and papillose-hispid with spreading or ascending hairs to nearly glabrous, the papillae often without hairs; ligule about 1 mm. long; blades ascending or erect, 5–10 cm. long, 6–12 mm. wide, usually firm, acuminate, rounded and ciliate at base, glabrous on the upper surface, appressed-pubescent to glabrous beneath; panicles short-exserted, 4–8 cm. long, rarely longer, two thirds to three fourths as wide, the flexuous branches ascending; spikelets 3.2–3.3 mm. long, 2 mm. wide, obovate, turgid, blunt, sparsely pubescent to nearly glabrous; first glume about one third the length of the spikelet, acute; second glume and sterile lemma subequal, barely or scarcely equaling the fruit at maturity, strongly nerved; fruit 2.8–2.9 mm. long, 1.8–1.9 mm. wide, broadly elliptic, minutely apiculate.

Autumnal phase branching from the middle and upper nodes at about the maturity of the primary panicle; the branches longer than the internodes, and late in the season producing crowded branchlets with ascending, not greatly reduced, blades and small, partially included, panicles from their upper nodes.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Maine to British Columbia, and south to Maryland and Arizona.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 12, f. 46* (as *P. pauciflorum*); Bull. U. S. Dep. Agr. Agrost. **17**: *f. 392*; Contr. U. S. Nat. Herb. **15**: *f. 319*; Francis, Book Grasses 72; Britt. & Brown, Ill. Fl. *f. 259*; ed. 2. *f. 372*.

184. **Panicum oligosanthes** Schultes, in R. & S. Syst. Veg. Mant. **2**: 256. 1824.

Panicum pauciflorum Ell. Bot. S. C. & Ga. **1**: 120. 1816. Not *P. pauciflorum* R. Br. 1810.
Panicum scoparium angustifolium Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 32. 1889.
Panicum scoparium pauciflorum Scribn. Bull. Tenn. Exp. Sta. **7**: 48. 1894.

Vernal phase olivaceous, in loose tufts of few to several culms 35–80 cm. high, erect, often purplish, appressed-pubescent, especially below; leaf-sheaths shorter than the internodes or the lower longer, the papillose pubescence ascending; hairs of the ligule 1–2 mm. long, with longer ones intermixed; blades stiffly spreading or ascending, 6–14 cm. long, 5–8 (rarely 10) mm. wide, sharply acuminate, narrowed toward the base, glabrous on the upper surface or rarely with a few long hairs, harshly puberulent beneath, stiffly ciliate near the base; panicles finally long-exserted, 6–12 cm. long, about as wide, loosely flowered, the branches usually stiffly ascending or spreading; spikelets long-pediceled, 3.5–4 mm. long, 1.7–1.9 mm. wide (smaller in exceptional specimens), oblong-obovate, subacute, sparsely hirsute; first glume less than half the length of the spikelet, acute; second glume slightly shorter than the fruit and sterile lemma; fruit 2.8–3 mm. long, 1.5–1.6 mm. wide, elliptic.

Autumnal phase erect or spreading, sometimes topheavy-prostrate, branching sparingly from the lower, freely from the upper, nodes, the short branchlets aggregated late in the season at the summit of the branches, the crowded, reduced blades widely spreading, the panicles more or less included and reduced to a few spikelets, these commonly more turgid and blunt than those of the primary panicle.

TYPE LOCALITY: Georgia.
DISTRIBUTION: New Jersey to Florida and eastern Texas, and northward to northern Indiana.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 394*; Contr. U. S. Nat. Herb. **15**: *f. 321*; Britt. & Brown, Ill. Fl. ed. 2. *f. 373*.

185. **Panicum Ravenelii** Scribn. & Merr. Bull. U. S. Dep. Agr. Agrost. **24**: 36. 1901.

Panicum scoparium majus Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 32. 1889.
Panicum scoparium genuinum Scribn. Bull. Tenn. Exp. Sta. **7**: 48. 1894.

Vernal phase in loose tufts, grayish-olive; culms 30–70 cm. high, erect or ascending, densely papillose-hirsute with ascending hairs, the nodes short-bearded; leaf-sheaths shorter than the long lower internodes, about equaling the short upper ones or overlapping, papillose-hirsute

like the culm; ligule 3–4 mm. long; blades thick, ascending or spreading, 8–15 cm. long, 1–2 cm. wide, sharply acuminate, rounded at the base, glabrous on the upper surface, densely velvety-hirsute beneath, usually short-ciliate nearly to the apex; panicles short-exserted or included at the base, 7–12 cm. long, as wide or wider, loosely flowered, the branches finally spreading; spikelets 4–4.3 mm. long, 2–2.2 mm. wide, obovate, turgid and blunt, sparsely papillose-pubescent; first glume one third to two fifths the length of the spikelet, acute; second glume and sterile lemma subequal, scarcely equaling the fruit at maturity, strongly nerved; fruit 3.2 mm. long, 2 mm. wide, elliptic, minutely apiculate.

Autumnal phase more or less spreading, branching from the middle and upper nodes, the short branchlets crowded at the summit late in the season, the reduced blades ascending, overtopping the small panicles.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Maryland to Missouri, and south to Florida and Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 323*; Britt. & Brown, Ill. Fl. ed. 2. *f. 376*.

186. **Panicum Leibergii** (Vasey) Scribn.; Nash, in Britt. & Brown, Ill. Fl. 3: 497. 1898.

Panicum scoparium Leibergii Vasey, Bull. U. S. Dep. Agr. Bot. 8: 32. 1889.
Panicum Scribnerianum Leibergii Scribn.; T. A. Williams, Bull. U. S. Dep. Agr. Agrost. 6: 32. 1897.
Milium Leibergii Lunell, Am. Midl. Nat. 4: 213. 1915.

Vernal phase dull-green, in clumps of few to several slender culms, 25–75 cm. high, erect from a more or less geniculate base, pilose to merely scabrous; leaf-sheaths shorter than the internodes, papillose-hispid with spreading hairs; ligule almost obsolete; blades ascending or erect, rather thin, 6–15 cm. long, 7–15 mm. wide, narrowed toward the rounded base, acuminate, papillose-hispid on both surfaces, often sparsely so above, papillose-ciliate from one third to half their length; panicles finally long-exserted, 8–15 cm. long, less than half as wide, the flexuous branches narrowly ascending or somewhat spreading at anthesis; spikelets 3.7–4 mm. long, 1.8–2 mm. wide, oblong-obovate, turgid, strongly papillose-hispid with spreading hairs; first glume more than half the length of the spikelet, pointed; second glume and sterile lemma subequal, covering the fruit at maturity or the lemma slightly exceeding it; fruit 3 mm. long, 1.7–1.8 mm. wide, obovate-oval.

Autumnal phase more or less leaning, sparingly branching from the middle and lower nodes late in summer, the branches mostly simple, erect, the blades scarcely reduced, usually exceeding the short-exserted panicles.

TYPE LOCALITY: Plymouth County, Iowa.
DISTRIBUTION: New York to Manitoba, and south to Ohio and Kansas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 8: *pl. 3*; 17: *f. 397*; Contr. U. S. Nat. Herb. 15: *f. 325*; Britt. & Brown, Ill. Fl. 3: App. *f. 259a*; ed. 2. *f. 371*.

187. **Panicum xanthophysum** A. Gray, N. Am. Gram. & Cyp. *28*. 1834.

Panicum xanthophysum amplifolium Scribn.; Brainerd, Jones & Eggl. Fl. Vt. 104. 1900.

Vernal phase yellowish-green, in loose tufts of few to many culms, 20–55 cm. high, erect or ascending, more or less scabrous; leaf-sheaths loose, about as long as the internodes or longer, sparsely papillose-pilose and ciliate at least toward the summit, rarely nearly glabrous; ligule 1 mm. long; blades erect or nearly so, rather thin, prominently nerved, 10–15 cm. long, rarely longer, 1–2 cm. wide, acuminate, slightly narrowed to the rounded papillose-ciliate base, otherwise glabrous, the uppermost blade not reduced, sometimes the largest; panicles finally long-exserted, 5–12 cm. long, very narrow, sometimes appearing almost racemose, few-flowered, the stiff branches erect or nearly so; spikelets 3.7–4 mm. long, 2–2.1 mm. wide, obovate, turgid and blunt at maturity, pubescent; first glume about half as long as the spikelet, pointed; second glume scarcely equaling the fruit and sterile lemma at maturity; fruit 2.9–3 mm. long, 2 mm. wide, obovate-oval, minutely umbonate.

Autumnal phase erect or ascending, branching from the second and third nodes, the branches erect, mostly simple, the blades not reduced, usually equaling the short-exserted panicles, the large, erect blades making the plant appear leafy in the middle.

TYPE LOCALITY: Pine plains, near Oneida Lake, New York.
DISTRIBUTION: Quebec to Minnesota, and south to Pennsylvania.
ILLUSTRATIONS: Trin. Ic. *pl. 357*; Torr. Fl. N. Y. *pl. 146*; Bull. U. S. Dep. Agr. Agrost. 17: *399*; Contr. U. S. Nat. Herb. 15: *f. 327*; Britt. & Brown, Ill. Fl. *f. 258*; ed. 2. *f. 374*.

188. **Panicum scoparium** Lam. Encyc. 4: 744. 1797.

Panicum pubescens Lam. Encyc. 4: 748. 1797.
Panicum viscidum Ell. Bot. S. C. & Ga. 1: 123. 1816.
Panicum pauciflorum Bosc; Spreng. Syst. 1: 313, as synonym. 1825.

Vernal plants grayish-olive, velvety-pubescent throughout except as noted; culms 80–130 cm. high, stout, erect or ascending, usually geniculate at base, the nodes villous with reflexed hairs, a glabrous, viscid ring below; leaf-sheaths about half as long as the long internodes, the velvety pubescence wanting on the back toward the summit, the surface here viscid when fresh; ligule 1 mm. long; blades rather thick, ascending or spreading, often reflexed late in the season, 12–20 cm. long, 10–18 mm. wide, long-acuminate, slightly narrowed to the rounded base, the uppermost leaf often much reduced; panicles finally long-exserted, 8–15 cm. long, nearly as wide, many-flowered, the axis, branches, and pedicels with viscid blotches, the branches ascending or spreading, spikelet-bearing to the base; spikelets 2.4–2.6 mm. long, 1.4–1.5 mm. wide, obovate, turgid at maturity, abruptly pointed, papillose-pubescent with spreading hairs; first glume one fifth to one fourth the length of the spikelet, acute to truncate; second glume and sterile lemma strongly nerved, the glume obtuse, shorter than the fruit at maturity, the lemma abruptly pointed and equaling it; fruit 2 mm. long, 1.4 mm. wide, obovate-elliptic, apiculate.

Autumnal phase leaning or spreading, branching from the middle nodes after the maturity of the primary panicle, the branches usually longer than the primary internodes, repeatedly branching, often more or less scorpioid, the ultimate branchlets in flabellate fascicles, the sheaths often swollen toward the summit, contracted at the throat, the blades much reduced, overtopping the small, partially included panicles.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Massachusetts to Florida, and west to Oklahoma and Texas.
ILLUSTRATIONS: Ell. Bot. S. C. & Ga. *pl. 7, f. 3*; Bull. Tenn. Exp. Sta. **7**: *pl. 11, f. 44*; Bull. U. S. Dep. Agr. Agrost. **17**: *f. 386*; **21**: *f. 11*; Contr. U. S. Nat. Herb. **15**: *f. 333*; Britt. & Brown, Ill. Fl. *f. 266*; ed. 2. *f. 377*.

189. **Panicum viscidellum** Scribn. Circ. U. S. Dep. Agr. Agrost. **19**: 2. 1900.

? *Panicum reflexopilum* Steud. Syn. Gram. 84. 1854.

Vernal culms ascending from a decumbent, widely spreading or creeping base, rooting at the lower nodes, softly villous or nearly glabrous, the nodes more or less short-bearded; leaf-sheaths shorter than the internodes, villous or, especially the uppermost, glabrate; ligule ciliate, 2–4 mm. long; blades spreading, rather thick, more or less velvety-pubescent or villous on both surfaces, the uppermost 5–13 cm. long, 9–13 mm. wide, linear-lanceolate, subcordate, the lower lanceolate, more cordate, shorter and wider; panicles 4–11 cm. long, half to two thirds as wide, usually densely flowered, the numerous branches spikelet-bearing from the base; spikelets 1.8–1.9 mm. long, 1 mm. wide, elliptic, acute, sparsely pubescent; first glume about one third as long as the spikelet, pointed; second glume and sterile lemma slightly exceeding the fruit at maturity; fruit 1.5 mm. long, 0.8 mm. wide, elliptic, abruptly pointed.

Autumnal phase branching from the middle and upper nodes, the branches erect or ascending from the decumbent primary culm, the densely villous sheaths often overlapping on the shortened internodes, the blades more or less ovate-lanceolate and strongly cordate-clasping, velvety-pubescent, the panicles similar to the primary ones but smaller.

TYPE LOCALITY: Jalapa, Vera Cruz.
DISTRIBUTION: Mexico to Colombia; Cuba.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 335*.

190. **Panicum aculeatum** Hitchc. & Chase; Hitchc. Rhodora **8**: 209. 1906.

Vernal plants in large clumps; culms slender, 70–100 cm. high, ascending, scabrous, harshly pubescent below; leaf-sheaths papillose-hispid with stiff, sharp-pointed hairs, a puberulent ring at the summit, the uppermost usually glabrous; ligule minute, membranaceous, ciliate; blades firm, stiffly ascending or spreading, 12–20 cm. long, 9–13 mm. wide, acuminate, involute-pointed, scarcely narrowed to the rounded base, very scabrous on the upper surface and toward the apex beneath; panicles 8–12 cm. long, about as wide, few-flowered, the slender,

flexuous, fascicled branches ascending or spreading, naked at the base, scabrous, sometimes with a few viscid spots; spikelets 3 mm. long, elliptic, minutely pubescent; first glume one fourth to one third as long as the spikelet, acute; second glume and sterile lemma abruptly acute, slightly exceeding the fruit; fruit elliptic, 2.7 mm. long, 1.3 mm. wide, minutely umbonate.

Autumnal phase branching from the middle nodes, the branches more or less divaricate, not much crowded, the blades not greatly reduced, the ultimate panicles wholly or partially included in the sheaths.

TYPE LOCALITY: Takoma Park, District of Columbia.
DISTRIBUTION: Long Island, New York, to North Carolina.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 336*; Britt. & Brown, Ill. Fl. ed. 2. *f. 380*.

191. **Panicum scabriusculum** Ell. Bot. S. C. & Ga. 1: 121. 1816.

Panicum lanuginosum Bosc; Spreng. Syst. 1: 319. 1825. Not *P. lanuginosum* Ell. 1816.
Panicum eriophorum Schultes; Kunth, Enum. 1: 128. 1833.
Panicum Nealleyi Vasey, Bull. Torrey Club 13: 25. 1886.
Panicum dichotomum elatum Vasey, Bull. U. S. Dep. Agr. Bot. 8: 31. 1889.

Vernal phase grayish-olive; culms erect, 1–1.5 meters high, scabrous at least below the nodes, sometimes puberulent, the nodes glabrous or puberulent; leaf-sheaths shorter than the internodes, glabrous to more or less hispid at least toward the summit, often mottled or white-spotted, commonly swollen at the base and contracted toward the summit; ligule short-membranaceous, usually with a ring of hairs above; blades stiffly ascending or spreading, often reflexed, 15–25 cm. long, 9–12 or rarely 15 mm. wide, glabrous or scabrous, often more or less pubescent beneath, gradually tapering to an involute point, slightly narrowed toward the base; panicles finally exserted, 10–20 cm. long, half to two thirds as wide, rarely wider, many-flowered, the axis glabrous or pubescent, often viscid, the flexuous branches ascending, spikelet-bearing from near the base; spikelets 2.3–2.6 mm. long, 1.1–1.3 mm. wide, ovate, pointed, glabrous or obscurely puberulent; first glume less than one sixth as long as the spikelet; second glume and sterile lemma strongly nerved, exceeding the fruit and forming an abrupt point beyond it; fruit 1.8 mm. long, 1 mm. wide, elliptic.

Autumnal phase erect, branching from the middle and upper nodes, the branches appressed, somewhat longer than the internodes, finally bearing fascicled branchlets and forming dense oblong masses along the upper part of the primary culm, the sheaths, especially the later ones, densely papillose-hirsute, the flat, reduced blades ovate-lanceolate, reduced in length much more than in width, the panicles partly or entirely inclosed in the sheaths.

TYPE LOCALITY: Savannah, Georgia.
DISTRIBUTION: New Jersey to Florida and eastern Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 387*; Contr. U. S. Nat. Herb. 15: *f. 338*; Britt. & Brown, Ill. Fl. ed. 2. *f. 379*.

192. **Panicum cryptanthum** Ashe, Bull. N. Car. Exp. Sta. 175: 115. 1900.

Vernal phase cespitose; culms erect, 80–100 cm. high, glabrous except the usually bearded nodes; leaf-sheaths glabrous or the lowermost sparsely hirsute, the upper somewhat inflated, all more or less ciliate on the margins and pilose at the summit; ligule membranaceous, erose, scarcely 0.5 mm. long; blades stiff, ascending or spreading, acuminate, involute-pointed, glabrous, sparingly ciliate at base, 10–15 cm. long, 7–9 mm. wide; panicles short-exserted, 6–10 cm. long, nearly as wide, the axis and ascending branches viscid-spotted; spikelets 2.2–2.4 mm. long, 1 mm. wide, lanceolate-elliptic, pointed; first glume one fourth to one third as long as the spikelet; second glume and sterile lemma equal, longer than the fruit and pointed beyond it, glabrous or sparsely pilose; fruit 1.5 mm. long, 0.9 mm. wide, elliptic.

Autumnal phase erect, glabrate on the nodes, sparingly branching from the middle and upper nodes, the branches stiffly ascending at an angle of 30–45 degrees; blades flat, stiffly ascending, 2–5 cm. long, 3–5 mm. wide, involute-pointed; panicles reduced to a narrow cluster partially hidden in the sheaths.

TYPE LOCALITY: Wilson's Mill, North Carolina.
DISTRIBUTION: North Carolina to Florida; eastern Texas.
ILLUSTRATION: Contr. U. S. Nat. Herb. 15: *f. 340*.

193. **Panicum Ashei** T. G. Pearson; Ashe, Jour. Elisha Mitchell Soc. **15**: 35. 1898.

Panicum umbrosum LeConte; Torr. Cat. Pl. N. Y. 91. 1819. Not *P. umbrosum* Retz. 1786.

Vernal plants usually conspicuously purplish, in loose clumps of few to several culms from a knotted crown; culms 25–50 cm. high, erect, stiff and wiry, densely crisp-puberulent, including the nodes; leaf-sheaths shorter than the internodes, less densely puberulent, short-ciliate; ligule obsolete; blades usually thick and firm, spreading or ascending, 4–8 cm. long, 5–10 mm. wide (the lower gradually smaller), acuminate, ciliate at the subcordate base and sometimes along the very scabrous margin, glabrous on both surfaces; panicles finally long-exserted, 5–8 cm. long, hardly as wide, loosely flowered, the branches usually in distant fascicles, ascending or spreading; spikelets 2.4–2.7 mm. long, 1.2–1.3 mm. wide, oblong-elliptic, obtuse or obscurely pointed, short-pubescent; first glume about one third the length of the spikelet, subacute; second glume and sterile lemma subequal, slightly exposing the fruit at maturity, obtuse or withering to a point; fruit 2.1 mm. long, 1.1 mm. wide, elliptic, minutely umbonate.

Autumnal phase erect or topheavy-reclining, the culms bearing divergent branches from the middle and upper nodes or from the upper only, the terminal joint of the primary culm commonly falling, the sheaths crowded or overlapping, the blades rigid and widely spreading, little reduced except those of late autumn; winter rosette appearing early, the blades thick and firm, usually prominently ciliate nearly to the apex.

TYPE LOCALITY: Ithaca, New York.
DISTRIBUTION: Massachusetts to Michigan, and south to Florida and Mississippi.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 342*; Britt. & Brown, Ill. Fl. ed. 2. *f. 381*.

194. **Panicum commutatum** Schultes, in R. & S. Syst. Veg. Mant. **2**: 242. 1824.

Panicum nitidum majus Pursh, Fl. Am. Sept. 67. 1814.
Panicum nervosum Muhl.; Ell. Bot. S. C. & Ga. **1**: 122. 1816. Not *P. nervosum* Lam. 1797.
Panicum Enslini Trin. Gram. Pan. 230. 1826.
? *Panicum cordifolium* Desv. Opusc. 88 [90]. 1831.
Panicum polyneuron Steud. Syn. Gram. 91. 1854.
Panicum commutatum minus Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 34. 1889.
Panicum commutatum latifolium Scribn.; Kearney, Bull. Torrey Club **20**: 476. 1893.
Panicum commelinaefolium Ashe, Jour. Elisha Mitchell Soc. **15**: 29. 1898. Not *P. commelinaefolium* Rudge, 1805.
Panicum Currani Ashe, Jour. Elisha Mitchell Soc. **15**: 113. 1899.
Panicum subsimplex Ashe, Bull. N. Car. Exp. Sta. 175: 115. 1900.

Vernal plants commonly purple-tinged; culms in clumps of few to many, 40–75 cm. high, rather stout, erect, glabrous or sometimes softly (not crisp) puberulent; nodes puberulent; leaf-sheaths shorter than the long internodes, ciliate on the margin and with a densely puberulent ring at the summit, otherwise glabrous, or puberulent between the nerves; ligule nearly obsolete; blades usually firm, spreading or ascending, 5–12 cm. long, 12–25 mm. wide, the lower and upper smaller than those of the midculm, rather abruptly tapering to an acuminate apex and slightly narrowed to the cordate-clasping base, glabrous on both surfaces or puberulent beneath or sometimes also above, the margin ciliate at the base; panicles usually long-exserted, 6–12 cm. long, as wide or wider, loosely flowered, the axis glabrous or nearly so, the flexuous branches spreading; spikelets 2.6–2.8 mm. long, 1.3 mm. wide, oblong-elliptic, obtuse, softly pubescent; first glume about one fourth the length of the spikelet, triangular, acute or obtuse; second glume and sterile lemma barely covering the fruit at maturity; fruit 2.2–2.3 mm. long, 1.2 mm. wide, elliptic, minutely umbonate.

Autumnal phase erect or leaning, branching from the middle nodes, the portion of the primary culm above the uppermost branch commonly falling away, leaving the branch, with its shortened internodes, crowded, rather loose sheaths, scarcely or not at all reduced blades, and hardly exserted panicle, at the apparent termination of the primary culm; secondary branchlets crowded toward the summit, the reduced blades exceeding the partly included, much reduced panicles; winter rosette appearing rather early, the blades firm, ovate.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Massachusetts to Michigan, and south to Florida and eastern Texas.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 13, f. 50*; Contr. U. S. Nat. Herb. **15**: *f. 344*; Britt. & Brown. Ill. Fl. *f. 255*; ed. 2. *f. 382*.

195. **Panicum mutabile** Scribn. & Smith; Nash, in Small, Fl. SE. U. S. 103. 1903.

Vernal plants blue-green, glaucous; culms solitary or few in a tuft, erect, 30–70 cm. high, glabrous or rarely minutely pubescent; leaf-sheaths much shorter than the internodes, glabrous except the usually sparsely ciliate margin; ligule very short, membranaceous-fimbriate; blades horizontally spreading, 6–15 cm. long, 8–20 mm. wide, tapering to both ends, rather thin, glabrous on both surfaces, ciliate on the margin toward the cordate base or the lower ciliate nearly to the apex; panicles 7–15 cm. long, about as wide, very loosely few-flowered; spikelets 2.9–3 mm. long, 1.2 mm. wide, elliptic, minutely pointed, pubescent; first glume about one third as long as the spikelet, subacute; second glume and sterile lemma equaling or slightly exceeding the fruit; fruit 2.6 mm. long, 1.1 mm. wide, elliptic, subacute.

Autumnal phase erect or reclining, sparingly branching from the middle and upper nodes, the branches longer than the internodes, finally producing toward the ends fascicles of shortened branchlets with somewhat reduced leaves.

TYPE LOCALITY: Biloxi, Mississippi.
DISTRIBUTION: Virginia to Florida, and west to Mississippi.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 346*; Britt. & Brown, Ill. Fl. ed. 2. *f. 383*.

196. **Panicum Joorii** Vasey, Bull. U. S. Dep. Agr. Bot. 8: 31. 1889.

Panicum leiophyllum Fourn. Mex. Pl. Gram. 20. 1886. Not *P. leiophyllum* Nees, 1829.
Panicum manatense Nash, Bull. Torrey Club 24: 42. 1897.

Vernal phase rather pale grayish-green; culms in clumps of few to many, 20–55 cm. high, slender, spreading or ascending from a decumbent base, glabrous or rarely puberulent, at least the lower internodes purplish-red; leaf-sheaths shorter than the internodes, ciliate, otherwise glabrous or rarely puberulent between the nerves; ligule nearly obsolete; blades ascending or spreading, 6–15 cm., rarely 18 cm. long, 7–18 mm. wide, thin but firm, often subfalcate, acuminate, narrowed toward the rounded base, usually ciliate at base, otherwise glabrous; panicles short-exserted, 5–9 cm. long, about two thirds as wide, loosely flowered, the branches ascending or spreading; spikelets 3–3.1 mm. long, 1.2–1.3 mm. wide, elliptic, abruptly short-pointed, pubescent; first glume one third to two fifths as long as the spikelet, acute; second glume and sterile lemma more or less pustulate-papillose between the nerves, the glume slightly shorter than the usually involute-pointed sterile lemma; fruit 2.4 mm. long, 1.2 mm. wide, elliptic, minutely umbonate.

Autumnal phase widely spreading, bearing more or less divaricate branches from all the nodes, these primary branches longer than the internodes and branching from all or from their upper nodes, the ultimate branchlets in short, dense fascicles, the reduced blades ascending, exceeding the numerous, small, partly included panicles; winter rosette a crown of a few short, leafy, basal shoots, with evident internodes.

TYPE LOCALITY: Louisiana.
DISTRIBUTION: Virginia to Florida and eastern Texas; Vera Cruz.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 17: *f. 383*; Contr. U. S. Nat. Herb. 15: *f. 348*.

197. **Panicum equilaterale** Scribn. Bull. U. S. Dep. Agr. Agrost. 11: 42. 1898.

Panicum epilifolium Nash, Bull. Torrey Club 26: 571. 1899.

Vernal plants glossy, grayish-green, in clumps of several to many culms, these 25–70 cm. high, stiff and erect, glabrous or nearly so, including the nodes; leaf-sheaths much shorter than the elongate internodes, or the upper two approximate, glabrous except for the densely short-ciliate margin; ligule nearly obsolete; blades firm, widely spreading or ascending, 6–17 cm. long, 6–14 mm. wide, very scabrous (the margins nearly parallel), often ciliate at the rounded or subcordate base, acuminate, glabrous on both surfaces, often drying conduplicate; panicles usually short-exserted, loosely flowered, 5–10 cm. long, two thirds to three fourths as wide, the branches ascending; spikelets 3.2 mm. long, 1.3 mm. wide, obovate-elliptic, obscurely pointed, pubescent; first glume half the length of the spikelet or more, rather remote, triangular, acute; second glume and sterile lemma subequal, barely covering the fruit at maturity; fruit 2.6–2.7 mm. long, 1.25 mm. wide, elliptic, minutely umbonate.

Autumnal phase erect or leaning, branching from the upper and middle nodes after the maturity of the primary panicle, these primary branches often longer than the internodes and producing short, fascicled, appressed branchlets with reduced spreading blades from their uppermost nodes, the numerous small panicles partly included; winter rosette appearing late, the blades lanceolate, firm, sometimes ciliate.

TYPE LOCALITY: Eustis, Florida.
DISTRIBUTION: South Carolina to Florida.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. 11: *pl. 2*; 17: *f. 395*; Contr. U. S. Nat. Herb. 15: *f. 350*.

198. **Panicum albomaculatum** Scribn. Circ. U. S. Dep. Agr. Agrost. 19: 2. 1900.

Vernal culms tufted, 50–100 cm. high, arising from a knotty crown, erect, slender but stiff, minutely puberulent to hirsute; leaf-sheaths long, the lower overlapping, puberulent to hirsute, more or less mottled with white spots, densely short-ciliate on the margin; ligule about 0.2 mm. long; blades firm, spreading or ascending, reflexed when old, 8–17 cm. long, 9–15 mm. wide, linear-lanceolate, acuminate, rounded and ciliate at the base, roughish on the upper surface and with a narrow line of appressed pubescence along the very scabrous margins, glabrous or obscurely pubescent beneath, rarely hirsute on both surfaces; panicles long-exserted, ovate in outline, 10–16 cm. long, two thirds to three fourths as wide, loosely flowered, the axis and ascending branches glabrous, or the former somewhat pilose; spikelets 2.8 mm. long, 1.2 mm. wide, obovate-elliptic, obtuse, sparsely pubescent; first glume nearly or quite half the length of the spikelet, obtuse, or subacute; second glume and sterile lemma equaling the fruit at maturity; fruit 2.2 mm. long, 1.2 mm. wide, elliptic, subacute.

Autumnal phase not known.

TYPE LOCALITY: Pátzcuaro, Mexico.
DISTRIBUTION: Southern Mexico and Guatemala.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. 15: *f. 352*.

199. **Panicum clandestinum** L. Sp. Pl. 58. 1753.

Milium clandestinum Moench, Meth. 204. 1794.
Panicum latifolium clandestinum Pursh, Fl. Am. Sept. 68. 1814.
Panicum pedunculatum Torr. Fl. U. S. 141. 1823.
Panicum clandestinum pedunculatum Torr. Fl. N. Y. 2: 426. 1843.
Panicum decoloratum Nash, Bull. Torrey Club 26: 570. 1899.
Chasea clandestina Nieuwl. Am. Midl. Nat. 2: 64. 1911.

Vernal phase in large, dense clumps, sometimes with strong rootstocks, 5–10 cm. long; culms stout, 70–150 meters high, erect, scabrous to papillose-hispid, at least below the nodes; leaf-sheaths as long as the internodes or overlapping until after the branches appear, loose, strongly papillose-hispid to nearly glabrous, a puberulent ring at the summit; ligule 0.5 mm. long; blades spreading or finally reflexed, 10–20 cm. long, 1.2–3 cm. wide, slightly tapering to the cordate-clasping base, acuminate, scabrous on both surfaces, at least toward the end, usually ciliate at the base; panicles finally rather long-exserted, 8–15 cm. long, about three fourths as wide, many-flowered, the flexuous branches in distant fascicles, with short spikelet-bearing branchlets in the axils; spikelets 2.7–3 mm. long, 1.4–1.5 mm. wide, obovate-oblong, sparsely pubescent; first glume one third the length of the spikelet, subacute or obtuse; second glume slightly shorter than the fruit and sterile lemma; fruit elliptic, 2.1–2.3 mm. long, 1.2–1.3 mm. wide.

Autumnal phase erect or leaning, sparingly branching, often before the maturity of the primary panicle, from the middle and upper nodes, the branches leafy, the swollen, bristly sheaths overlapping on the shortened internodes and inclosing wholly or partially the secondary panicles; spikelets more turgid than those of the primary panicles.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Maine to Kansas, and south to Florida and eastern Texas.
ILLUSTRATIONS: Bull. Tenn. Exp. Sta. 7: *pl. 11, f. 43*; Bull. U. S. Dep. Agr. Agrost. 17: *f. 388*; Contr. U. S. Nat. Herb. 15: *f. 353*; Francis, Book Grasses 72; Britt. & Brown, Ill. Fl. *f. 257*; ed. 2. *f. 386*.

200. **Panicum latifolium** L. Sp. Pl. 58. 1753.

Milium latifolium Moench, Meth. 204. 1794.
Panicum macrocarpon LeConte; Torr. Cat. Pl. N. Y. 91. 1819.
Panicum Schnecki Ashe, Bull. N. Car. Exp. Sta. 175: 116. 1900.

Vernal plants in clumps of few to several culms from a knotted crown; culms rather stout, 45–100 cm. high, erect, glabrous, or the lower internodes sometimes sparsely pubescent, the nodes glabrous, rarely with a few hairs; leaf-sheaths shorter than the internodes, ciliate on the margin, a pubescent ring at the juncture with the blade, otherwise glabrous, or the lower sparsely downy; ligule nearly obsolete; blades rather thin, ascending or spreading, 8–18 cm. long, 1.5–4 cm. wide, the lower smaller, acuminate, cordate-clasping at the base, glabrous, rarely sparsely pubescent on one or both surfaces, short-ciliate at least toward the base; panicles usually short-exserted or sometimes finally long-exserted, 7–15 cm. long, about two thirds as wide, the long, few-flowered, nearly simple branches stiffly ascending; spikelets rather short-pediceled, commonly more or less clustered in twos or threes, 3.4–3.7 mm. long, 1.8–2 mm. wide, oval-obovate, turgid, sparsely pubescent; first glume one third to half the length of the spikelet, pointed; second glume and sterile lemma scarcely covering the fruit at maturity; fruit 3 mm. long, 1.6–1.8 mm. wide, elliptic, minutely pubescent on the obscurely apiculate apex.

Autumnal phase more or less spreading, branching from the middle nodes, the upper leaves of the branches crowded and spreading, not much reduced, the small panicles partly included.

TYPE LOCALITY: Northeastern United States.
DISTRIBUTION: Maine to Minnesota, and south to North Carolina and Kansas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 355*; Britt. & Brown, Ill. Fl. *f. 256*; ed. 2. *f. 384*.

201. **Panicum Boscii** Poir. in Lam. Encyc. Suppl. **4**: 278. 1816.

Panicum Waltheri Poir. in Lam. Encyc. Suppl. **4**: 282. 1816. Not *P. Walteri* Pursh, 1814.
Panicum latifolium australe Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 34. 1889.
Panicum latifolium molle Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 34. 1889.
Panicum Walteri molle Porter, Bull. Torrey Club **20**: 194. 1893.
Panicum Porterianum Nash, Bull. Torrey Club **22**: 420. 1895.
Panicum pubifolium Nash, Bull. Torrey Club **26**: 577. 1899.
Panicum Boscii molle Hitchc. & Chase; B. L. Robinson, Rhodora **10**: 64. 1908.

Vernal phase resembling that of *P. latifolium*, usually in larger clumps; culms 40–70 cm. high, erect or ascending, glabrous or minutely puberulent, rarely somewhat papillose, the nodes retrorsely bearded; leaf-sheaths much shorter than the internodes, ciliate, a pubescent ring at the juncture with the blade, otherwise glabrous or sparsely downy-pilose; ligule about 1 mm. long; blades spreading, 7–12 cm. long, 1.5–3 cm. wide, more or less tapering toward the sparsely ciliate, cordate base, acuminate, glabrous on both surfaces or puberulent on the lower and sparsely pubescent on the upper surface; panicles 6–12 cm. long, as wide or wider, the main axis and the flexuous spreading or ascending branches puberulent; spikelets 4–4.5 mm. long, 2–2.2 mm. wide, oblong-obovate, less turgid than in *P. latifolium*, papillose-pubescent; first glume one third to two fifths the length of the spikelet, pointed; second glume slightly shorter than the fruit and sterile lemma at maturity; fruit 3.2–3.5 mm. long, 1.5–1.6 mm. wide, elliptic, minutely pubescent, and usually black at the tip.

Autumnal phase as in *P. latifolium*, rather more freely branching, sometimes topheavy-reclining; spikelets more turgid than those of the primary panicles.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Massachusetts to Missouri, and south to Florida and Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 396* (as *P. latifolium*); Contr. U. S. Nat. Herb. **15**: *f. 357*; Britt. & Brown, Ill. Fl. ed. 2. *f. 385*.

Panicum Boscii molle (*Panicum pubifolium*) is a more downy-villous form. ILLUSTRATIONS: Bull. Tenn. Exp. Sta. **7**: *pl. 12, f. 45* (as *P. latifolium*); Contr. U. S. Nat. Herb. **15**: *f. 359*; Britt. & Brown, Ill. Fl. *f. 254* (as *P. Porterianum*).

202. **Panicum pedicellatum** Vasey, Bull. U. S. Dep. Agr. Bot. **8**: 28. 1889.

Vernal phase in tufts of few to several erect or ascending culms from a short, knotted root-stock; culms slender, 20–50 cm. high, usually ascending-hirsute at least below, a few spreading

hairs on the nodes; leaf-sheaths papillose, sparingly hirsute, ciliate on the margin; ligule dense, about 1 mm. long; blades ascending or spreading, 5–9 cm. long, 3–6 mm. wide, the margin toward the narrowed base sparsely ciliate with long hairs, both surfaces glabrous or sometimes minutely hispid; panicles 3–6 cm. long, about three fourths as wide, the branches few, spreading or ascending; spikelets 3.5–3.7 mm. long, 1.4 mm. wide, elliptic, prominently papillose-hispid; first glume nearly or quite half the length of the spikelet, narrow, acute; second glume shorter than the fruit and sterile lemma at maturity; fruit 3 mm. long, 1.3 mm. wide, elliptic, subacute.

Autumnal phase erect or leaning, branching from all but the uppermost nodes before the maturity of the primary panicle, the branches slightly divaricate, the blades and panicles not greatly reduced.

TYPE LOCALITY: Kimble County, Texas.
DISTRIBUTION: Texas.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **17**: *f. 375*; Contr. U. S. Nat. Herb. **15**: *f. 329*.

203. **Panicum nodatum** Hitchc. & Chase, Contr. U. S. Nat. Herb. **15**: 293. 1910.

Vernal phase in tufts from a knotted crown; culms ascending or spreading, slender but hard and wiry, 25–35 cm. high, finely papillose, crisp-puberulent; leaf-sheaths shorter than the internodes, papillose-hispid between the strong nerves; ligule dense, scarcely 1 mm. long; blades firm, ascending, 3–5 cm. long, 3–6 mm. wide, broadest at the rounded base, abruptly acute, puberulent on both surfaces, papillose-ciliate with stiff hairs 2–3 mm. long; panicles 4–5 cm. long, half to two thirds as wide, few-flowered, the few branches ascending; spikelets 4 mm. long, 1.7 mm. wide, pyriform, papillose-pubescent; first glume about one third the length of the spikelet, acuminate; second glume slightly shorter than the fruit and sterile lemma; fruit 3 mm. long, 1.4 mm. wide, obovate-elliptic, minutely white-puberulent at the apex.

Autumnal phase widely geniculate-decumbent, early branching from all but the uppermost node, the branches somewhat divaricate, equaling or exceeding the main culm, with numerous swollen nodes, the internodes 2–3 cm. long, the whole forming a loose tuft, the blades and panicles not reduced.

TYPE LOCALITY: Sarita, Texas.
DISTRIBUTION: Texas and adjacent Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. **15**: *f. 331*.

204. **Panicum cordovense** Fourn. Mex. Pl. Gram. 26. 1886.

Panicum expansum Fourn. Mex. Pl. Gram. 26. 1886.
Ichnanthus apiculatus Scribn. Circ. U. S. Dep. Agr. Agrost. **30**: 1. 1901.
Panicum missionum Ekman, Ark. Bot. **11**[4]: 19. 1912.

Plants perennial in tangled masses; culms slender, subcompressed, with a line of pubescence down one side or glabrous, rarely sparsely pilose, straggling, widely creeping, rooting at the lower nodes, as much as 2 meters long, freely branching, the branches usually divergent, becoming nearly as long as the primary culm; nodes puberulent or glabrate; leaf-sheaths much shorter than the usually elongate internodes, sparsely papillose-pilose or papillose only, densely ciliate on the margin, puberulent at the juncture with the blade; ligule about 0.3 mm. long; blades thin, flat, spreading, 5–10 cm. (rarely as much as 15 cm.) long, 5–10 mm. wide, narrowly lanceolate, acuminate, rounded and usually ciliate at base, scaberulous on both surfaces at least on the midnerve, usually papillose-hispid above the ligule, sometimes sparsely so throughout; panicles of two kinds, the primary short-exserted or included at base, loose and open, 10–15 cm. long, half to two thirds as wide, the axis and branches slender, subflexuous, scaberulous, pubescent in the axils, the few branches solitary or in pairs, remote, simple or nearly so, finally spreading, few-flowered, the branches and short-pediceled apparently unfruitful spikelets more or less appressed to the rachis, the secondary panicles terminal on the branches, reduced, narrow, few-flowered, partially enclosed in the sheath, the crowded, apparently cleistogamous spikelets fruitful; spikelets 3–3.5 mm. long, 1.2–1.4 mm. wide, those of the primary panicles usually glabrous, those of the secondary panicles usually pustulose-villous, turgid; first glume about two thirds as long as the spikelet, obtuse, 3–5-nerved; second glume and sterile lemma equal, covering the fruit, 7-nerved, the middle internerves of the sterile

lemma in the pubescent spikelets usually glabrous, the midnerve sometimes indistinct; fruit 2.8–2.9 mm. long, 1.1–1.2 mm. wide, apiculate.

TYPE LOCALITY: Córdoba, Mexico.
DISTRIBUTION: Southern Mexico to Panama.
ILLUSTRATIONS: Ark. Bot. **11**[4]: *pl. 3, f. 1*; Contr. U. S. Nat. Herb. **17**: *f. 135, 136*.

205. **Panicum chiriquiense** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 527. 1915.

Plants perennial, olivaceous; culms straggling, creeping and rooting at the lower nodes, softly papillose-pilose, freely branching, the leafy fertile branches ascending, 20–30 cm. high; nodes pilose; leaf-sheaths nearly as long as the internodes or the upper overlapping, softly papillose-pilose; ligule short, 0.5 mm. long; blades flat, somewhat spreading, 4–7 cm. long, 7–10 mm. wide, narrowly lanceolate, asymmetric at base and often somewhat falcate, acuminate, softly papillose-villous beneath, rather sparsely pilose on the upper surface; panicles short-exserted or included at base, 2.5–3.5 cm. long, half to two thirds as wide, the few branches ascending, the axis and few nearly simple branches slender, villous; spikelets short-pediceled, 2.6–2.8 mm. long, about 1.1 mm. wide, elliptic; first glume about three fourths as long as the spikelet, acute, 3-nerved, villous; second glume and sterile lemma equal, covering the fruit, the glume villous, minutely apiculate, the lemma usually subindurated, smooth and shining in the two middle internerves, the midnerve suppressed or evident at the summit only, the lateral internerves villous; fruit 2.1 mm. long, 1 mm. wide, minutely apiculate.

TYPE LOCALITY: El Boquete, Panama.
DISTRIBUTION: Known only from the type collection.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 138*.

206. **Panicum obtusum** H. B. K. Nov. Gen. & Sp. **1**: 98. 1815.

Panicum polygonoides C. Muell. Bot. Zeit. **19**: 323. 1861.
Panicum repente Buckl. Prel. Rep. Geol. & Agr. Surv. Tex. App. 3. 1866.
Brachiaria obtusa Nash, in Britton, Man. 77. 1901.

Plants perennial, usually tufted from a more or less knotted rootstock, and producing widely creeping stolons, sometimes 2 meters long or more, with long internodes, and geniculate, swollen, conspicuously villous nodes, these often with a knob-like cluster of hairy scales at the base of the extravaginal, erect branches, the clusters produced sometimes when the branch is not developed; culms wiry, compressed, 20–80 cm. high, simple, usually decumbent at base, glabrous, the nodes glabrous; leaf-sheaths shorter than the internodes, glabrous, or the lower and those of the stolons sometimes villous; ligule membranaceous, about 1 mm. long; blades 3–20 cm. long, 2–7 mm. wide, erect, firm, usually involute-setaceous toward the tip, glabrous on both surfaces or sometimes with a few long hairs on the upper surface at the base; panicle usually short-exserted, 3–12 cm. long, about 1 cm. wide, the few, appressed, raceme-like branches densely flowered; spikelets short-pediceled along one side of a slightly flattened rachis, 3–3.8 mm. long, 1.5–1.8 mm. wide, and about 2 mm. thick, obovoid, blunt, glabrous, usually brownish; first glume nearly as long as the spikelet, 5-nerved; second glume and sterile lemma subequal, 7–9-nerved, the lemma subtending a rather firm palea and a staminate flower; fruit 3–3.5 mm. long, 1.5–1.7 mm. wide, subacute, smooth and shining, but very obscurely pubescent at the apex.

TYPE LOCALITY: Near Guanajuato, Guanajuato.
DISTRIBUTION: Missouri to Arizona, and south to central Mexico.
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Agrost. **7**: *f. 45*; Contr. U. S. Nat. Herb. **15**: *f. 361*; Britt. & Brown, Ill. Fl. *f. 246*; ed. 2. *f. 312*.

207. **Panicum grande** Hitchc. & Chase, Contr. U. S. Nat. Herb. **17**: 529. 1915.

Plants perennial, gregarious, producing extensively creeping or floating leafy stolons about 5 mm. thick; culms 1.5–2 meters high or more, erect from a long decumbent base with papery sheaths and tufts of fibrous roots, 1–2 cm. thick, simple or sparingly branching, succulent, the nodes densely appressed-hirsute; leaf-sheaths overlapping except toward the summit, glabrous,

the juncture with the blade in drying presenting a darkened triangle on each side; ligule membranaceous, about 2 mm. long; blades flat, as much as 1 meter long and 6 cm. wide (the upper and lower smaller), at base narrower than the sheath, gradually widening to about the middle, narrowing rather abruptly to the acuminate apex, glabrous, striate, somewhat plicate, the margins strongly serrulate; panicles as much as 60 cm. long and 40 cm. wide, the axis and branches strongly several angled, scaberulous, the prominent pulvini minutely pubescent, the branches stiffly spreading, naked at base, the lower in whorls, the short ultimate branchlets and the pedicels appressed along the rather loose secondary branchlets, the pedicels mostly 1–2 mm. long; spikelets 2.5 mm. long, 0.9 mm. wide, nearly terete, pointed, glabrous; first glume slightly more than half the length of the spikelet; second glume and sterile lemma equal, exceeding the fruit, somewhat beaked beyond it; fruit 1.8 mm. long, 0.7 mm. wide, narrowly obovate, smooth and shining, the lemma and palea indurated but the lemma-margins flat.

TYPE LOCALITY: Gatun Lake, Canal Zone.
DISTRIBUTION: Panama to Brazil.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 143*.

208. **Panicum hemitomon** Schultes, in R. & S. Syst. Veg. Mant. **2**: 227. 1824.

Panicum Walteri Muhl. Descr. Gram. 108. 1817. Not *P. Walteri* Pursh, 1814.
Panicum carolinianum Spreng. Syst. 1: 310. 1825.
Panicum carinatum Torr.; M. A. Curt. Bost. Jour. Nat. Hist. 1: 137. 1835. Not *P. carinatum* J. Presl, 1830.
Panicum digitarioides Carpenter; M. A. Curt. Am. Jour. Sci. II. 7: 410, as synonym. 1849. Not *P. digitarioides* Rasp. 1833.
Panicum Curtisii Chapm. Fl. S. U. S. 573. 1860. Not *P. Curtisii* Steud. 1854.
Brachiaria digitarioides Nash, in Britton, Man. 77. 1901.

Plants aquatic or semiaquatic, with extensively creeping rootstocks often producing numerous sterile shoots with overlapping, sometimes densely hirsute sheaths, and blades 10–25 cm. long and 8–12 mm. wide, strigose on one or both surfaces; fertile culms erect, 0.5–1.5 meters or more high, stout, usually hard, glabrous; submerged leaf-sheaths rather loose and papery, often nodulose, the aerial ones shorter than the internodes, close, glabrous or ciliate on the margin, rarely hirsute toward the summit like those of the sterile shoots, or the lower hirsute throughout; ligule lacerate-ciliate, about 1 mm. long; blades ascending or spreading, 10–25 cm. long, 7–15 mm. wide, acuminate, rounded at base, firm, usually scabrous on the upper surface, smooth below; panicles short-exserted, 15–30 cm. long, very narrow, the branches erect or ascending, solitary or 2 or 3 in a fascicle, the lower distant, gradually approximate upward, 2–10 cm. long, bearing short, appressed branchlets or subsessile spikelets along the triquetrous, scabrous rachis; spikelets 2.4–2.7 mm. long, 0.8–1 mm. wide, lanceolate, acute, often slightly laterally compressed (that is the glumes so keeled that the spikelet lies on its side); first glume clasping, about half the length of spikelet, acute, 3-nerved; second glume strongly keeled, somewhat boat-shaped, acute, 3–5-nerved, slightly shorter than the 5-nerved sterile lemma, the latter inclosing a membranaceous, scabrous-nerved palea of nearly equal length; fruit 2.3–2.5 mm. long, 0.7 mm. wide, slightly boat-shaped, elliptic, acute, smooth and shining, not rigid, the margins of the lemma inrolled toward the base only, the apex of the palea scarcely inclosed.

TYPE LOCALITY: Charleston, South Carolina.
DISTRIBUTION: Delaware to Florida, and west to eastern Texas.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **15**: *f. 363*; Britt. & Brown, Ill. Fl. *f. 245* (as *P. digitarioides*); ed. 2. *f. 311*.

209. **Panicum Tuerckheimii** Hack. Allg. Bot. Zeits. **12**: 60. 1906.

Plants perennial, from a firm knotty base with strong roots; culms erect or ascending, simple, 30–50 cm. high, compressed, glabrous, with few to several long erect leaves borne at the base, the nodes appressed-hirsute; leaf-sheaths compressed-keeled, more or less hispidulous at the juncture with the blade, otherwise glabrous, those of the basal leaves loose, overlapping, those of the culm about as long as the internodes; ligule membranaceous-ciliate, scarcely 0.5 mm. long; blades thin, flat, 10–25 cm. long, 2–2.5 cm. wide. gradually tapering from about the middle to an acuminate apex, the uppermost rather abruptly narrowed to a somewhat rounded

ciliate base, the lower and especially the basal blades gradually tapering into a narrow, more or less folded, petiole-like base, ciliate on the margins, puberulent on the upper surface at the very base; panicles short-exserted, 15–20 cm. long, less than one fourth as wide, the slender angled axis and branches glabrous, the branches remote, rather stiffly ascending, with short ascending remote branchlets, these spikelet-bearing from the base, more or less pilose in the axils, the lower branches about 10 cm. long; spikelets rather short-pediceled, russet-brown, 2.5–3 mm. long, about 0.9 mm. wide, acuminate, very sparsely appressed-pilose; first glume minute, hyaline; second glume and sterile lemma rather faintly nerved, subequal, or the acuminate tip of the glume exceeding the lemma, the sterile palea wanting; fruit 2.4 mm. long, 0.8 mm. wide, the lemma and palea not greatly indurated, the lemma minutely pubescent at the pointed apex, the palea at the very tip not enclosed.

TYPE LOCALITY: Cubilquitz, Guatemala.
DISTRIBUTION: Known only from the type collection.
ILLUSTRATION: Contr. U. S. Nat. Herb. **17**: *f. 145*.

210. **Panicum zizanioides** H. B. K. Nov. Gen. & Sp. **1**: 100. 1815.

Panicum oryzoides Sw. Prodr. 23. 1788. Not *P. oryzoides* Ard. 1764.
? *Panicum Balbisianum* Schultes, in R. & S. Syst. Veg. Mant. **2**: 254. 1824.
Panicum grandiflorum Trin.; Nees, Agrost. Bras. 143, as synonym. 1829.
Panicum pseudoryzoides Steud. Syn. Gram. 75. 1854.

Plants perennial, decumbent at base, rooting and rather sparingly branching at the lower nodes; culms spreading or ascending, 0.5–1 meter long beyond the decumbent base, rather robust, more or less angled, glabrous, rarely with a few appressed hairs below the glabrous nodes; leaf-sheaths densely short-ciliate, otherwise glabrous or papillose-hirsute toward the summit; ligule nearly obsolete; blades 4–15 cm. long, 8–30 mm. wide, cordate-clasping, acuminate, glabrous or rarely with a few appressed hairs; panicles short-exserted, 10–25 cm. long, composed of a few ascending or appressed, stiff, slender branches 3–10 cm. long, bearing throughout their length short, appressed branchlets with more or less secund spikelets, mostly two on each branchlet, one nearly sessile, the other on a pedicel about as long as the spikelet, the branchlets angled, scabrous; spikelets 5.5–6 mm. long, 2–2.5 mm. wide, and as thick or thicker, obovoid, abruptly short-pointed, glabrous; first glume about two thirds the length of the spikelet, acute, 3–5-nerved; second glume and sterile lemma equal, abruptly contracted into a short, keeled tip, 5-nerved, the lateral nerves of the lemma usually obsolete below the summit, the sterile palea about two thirds as long as its lemma; fruit 4.7–5 mm. long, 1.8–2 mm. wide, becoming dark-brown at maturity, smooth and shining, the lemma somewhat boat-shaped and with a short, erose, laterally compressed crest at the apex, the apex of the palea similarly compressed and bent outward.

TYPE LOCALITY: Colombia.
DISTRIBUTION: Mexico and the West Indies to Paraguay.
ILLUSTRATIONS: Kunth, Rév. Gram. *pl. 28*; Contr. U. S. Nat. Herb. **15**: *f. 367*.

211. **Panicum gymnocarpon** Ell. Bot. S. C. & Ga. **1**: 117. 1816.

Panicum monachnoides Desv. Opusc. 86. 1831.
Panicum Drummondii Nees; Steud. Syn. Gram. 63. 1854.
Phanopyrum gymnocarpon Nash, in Small, Fl. SE. U. S. 104. 1903.

Plants perennial, with a succulent, decumbent or creeping base, sometimes as much as 2 meters long, rooting at the nodes, glabrous throughout; culms erect or ascending, 60–100 cm. high, rather thick and succulent; nodes often dark-colored; leaf-sheaths shorter than the internodes, sometimes ciliate near the summit; ligule membranaceous, about 1 mm. long, decurrent down the margin of the sheath; blades linear-lanceolate, 20–35 cm. long, or the upper and lower shorter, usually 15–25 mm. wide, flat, scarcely narrowed at the cordate, sparingly ciliate base, narrowed from about the middle to the acute apex, the margins very scabrous; panicles finally exserted, 20–40 cm. long, about three fourths as wide, consisting of several to many racemes, solitary or fascicled along a main axis, the racemes stiffly ascending, or somewhat spreading, the middle 8–12 cm. or occasionally as much as 18 cm. long, usually spikelet-bearing from base, the spikelets short-pediceled on short, appressed branchlets, thus appearing in somewhat scattered clusters; spikelets 6–7 mm. long, about 1.2 mm. wide, and, by the spreading

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3[1]: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

7[1]: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae.

7[2]: 83–160. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae (pars).

7[3]: 161–268. (Uredinales:) Aecidiaceae (pars).

9[1]: 1–72. (Agaricales:) Polyporaceae (pars).

9[2]: 73–132. (Agaricales:) Polyporaceae (conclusio).

9[3]: 133–200. (Agaricales:) Boletaceae, Agaricaceae (pars).

9[4]: 201–296. (Agaricales:) Agaricaceae (pars).

10[1]: 1–76. (Agaricales:) Agaricaceae (pars).

15[1]: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae.

15[2]: 77–166. (Bryales:) Dicranaceae, Leucobryaceae.

16[1]: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17[1]: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars).

17[2]: 99–196. (Poales:) Poaceae (pars).

22[1]: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae.

22[2]: 81–192. (Rosales:) Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae.

22[3]: 193–292. (Rosales:) Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars).

22[4]: 293–388. (Rosales:) Rosaceae (pars).

22[5]: 389–480. (Rosales:) Rosaceae (pars).

25[1]: 1–88. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae.

25[2]: 89–171. (Geraniales:) Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae.

25[3]: 173–261. (Geraniales:) Rutaceae, Surianaceae, Simaroubaceae, Burseraceae.

29[1]: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

34[1]: 1–80. (Carduales:) Carduaceae (pars).

34[2]: 81–180. (Carduales:) Carduaceae (pars).

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